PB87-188843

Superfund Record of Decision (EPA Region 4)
Coleman Evans Wood Preserving Co
Jacksonville, Duval County, Florida
September 1986

(U.S.) Environmental Protection Agency
Washington, DC

25 Sep 86

U.S. Department of Commerce
National Technical Information Service
NTIS

TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)	
1. REPORT NO. EPA/ROD/R04-86/019	2.
3. RECIPIENT'S ACCESSION NO. PB87 188843/AS	
4. TITLE AND SUBTITLE SUPERFUND RECORD OF DECISION Coleman Evans, FL	5. REPORT DATE September 25, 1986
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO
	11. CONTRACT/GRANT NO
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report
	14. SPONSORING AGENCY CODE 800/00
15. SUPPLEMENTARY NOTES	

16. ABSTRACT

The Coleman Evans Wood Preserving Company site is an active 11-acre wood preserving facility located in the town of Whitehouse, Duval County, Florida. The site consists of two distinct areas: the western portion, which comprises the wood treating facility; and the eastern portion, which consists of a landfill area which has been used for the disposal of wood chip and other wastes. Land use around the site is primarily residential and light commercial/industrial. Since 1954, Coleman Evans has produced wood products impregnated with PCP. Wastes from the process were discharged into an onsite drainage ditch, and two unlined sludge disposal pits. In 1980, ground water underneath the site was found to be contaminated. As a result, Coleman Evans constructed a closed-loop treatment system. In 1985, an immediate removal action was taken to remove the contents of the two unlined pits. Subsequent site investigations confirm soil and ground water contamination, with PCP the primary contaminant of concern.

The selected remedial action for this site includes: all soils and sediments with PCP concentrations greater than 10 mg/kg will be excavated, approximately 9,000 cubic yards; excavated soils will be incinerated in a temporary onsite incineration unit. Decontamianted soils will be backfilled onsite; ground water recovery will be conducted for dewatering to facilitate excavation and to treat ground water with PCP concentrations greater than 1.01 mg/l. Recovered ground water will be stored and

(See Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Coleman Evans, FL Contaminated Media: gw, soil, sediments Key contaminants: PCP		
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) None	21. NO. OF PAGES 31
	20. SECURITY CLASS (This page) None	22. PRICE

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

PB87-188843

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R04-86/019
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EPA

Superfund Record of Decision:

Coleman Evans, FL

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U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA 22161

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EPA/ROD/R04-86/019
Coleman Evans, FL

16. ABSTRACT (continued)

analyzed. If the level of PCP exceeds 1 ug/l, the ground water will be treated by an onsite carbon adsorption unit to a level below 1 ug/l PCP in accordance with Chapter 17-3.061.3(m) of the Florida Administrative Code before discharge to the surface water environment via the onsite drainage ditch. Other incidental Hazardous Substance List compounds identified in ground water during the implementation of this remedy will be cleaned up to levels which comply with Drinking Water Standards. Clean up compounds for which no standards exist will be to non-detection levels. The estimated capital cost for the remedy is $3,000,000 - $3,800,000 with no O&M costs.

RECORD OF DECISION
REMEDIAL ACTION SELECTION

SITE

Coleman Evans Wood Preserving Co.
Jacksonville, Duval County, Florida

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents which describe site specific conditions and the analysis of effectiveness and cost of the remedial alternatives for the Coleman Evans Site:

- Coleman Evans Wood Preserving Co. Site Remedial Investigation Report,
- Coleman Evans Wood Preserving Co. Site Feasibility Study,
- Coleman Evans Wood Preserving Co. Summary of Remedial Alternative Selection,
- Public Health Evaluation,
- Agency for Toxic Substances and Disease Registry - Health Assessment,
- Department of the Interior - Release from Claims for Damages to the Natural Resources Under DOI Trusteeship.

DESCRIPTION OF THE SELECTED REMEDY

- All soils and sediments with pentachlorophenol (PCP) concentrations greater than 10 mg/kg will be excavated; approximately 9000 cubic yards.

- Excavated soils will be incinerated in a temporary onsite incineration unit. The soils will be decontaminated in a primary chamber where PCP and fuel oil will be driven off in a gaseous phase. The PCP will be thermally destroyed in a secondary chamber. Incineration will be undertaken in accordance with federal, state, and local laws. A detailed Quality Assurance/Quality Control plan will be developed during the Remedial Design.

- Decontaminated soils will be backfilled onsite.

- Ground water recovery will be conducted for dewatering to facilitate excavation and to treat ground water with PCP concentrations greater than 1.01 mg/l. Recovered ground water will be stored and analyzed. If the level of PCP exceeds 1 ug/l, the ground water will be treated by an onsite carbon adsorption unit to a level below 1 ug/l PCP in accordance with Chapter 17-3.061.3(m) of the Florida Administrative Code before discharge to the surface water environment via the onsite drainage ditch. If EPA promulgates further regulations in the future which are more stringent than those outlined in this ROD, the future regulations will be observed.

- Other incidental Hazardous Substance List compounds identified in ground water during the implementation of this remedy will be cleaned up to levels which comply with Drinking Water Standards. If the Drinking Water Standards do not address these compounds, clean up will be consistent with the human health criteria identified in the 1980 Water Quality Criteria. Clean up of compounds for which no standards exist will be to non-detection levels. In cases where standards promulgated by the State of Florida are more stringent, the State standards will have precedence.

- Due to the complete destruction of site specific contaminants by incineration, no post-remedial monitoring or operations and maintenance activity is required.

DECLARATIONS

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR, Part 300), I have determined that the above Description of Selected Remedy for the Coleman Evans Wood Preserving Co. Site is an effective remedy and provides adequate protection of public health, welfare, and the environment. The State of Florida has been consulted and agrees with the approved remedy. These activities will be considered part of the approved action and eligible for Trust Fund monies until remedial action is complete. The basic assumption is that EPA will undertake implementation if the responsible parties fail to undertake the design and implementation of the selected remedy.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites. In addition, the selected remedy is more permanent than other remedial actions, and is necessary to protect public health, welfare or the environment.

If additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial action.

SEP 25 1986
Date

Jack E. Ravan
Regional Administrator

SECTION I
SITE LOCATION AND DESCRIPTION

The Coleman Evans Wood Preserving Company (Coleman Evans) is located on Celery Avenue in Whitehouse, Duval County, Florida (Figure 1). The site is an active 11-acre wood preserving facility which uses pentachlorophenol (PCP) as a wood preservative.

The Coleman Evans site is composed of two distinct areas. The first area comprises the wood treating facility and is located on the western portion of the property. The eastern portion is a landfill area which has been used for disposal of wood chips and other facility wastes.

Site surface features include two unlined disposal pits, which were partially removed in July 1985 under an EPA emergency response, and the active wood treatment facilities. The treatment system is composed of a large pressure chamber, several tanks for storage of the preservative fluids, a sand filter system, and several storage sheds.

The Coleman Evans site is relatively flat, with less than 10 feet of relief over the entire site. The site drains into a ditch which eventually enters into a swampy area to the south, and then into McGirts Creek.

Within a 1-mile radius of the site, land use is primarily residential and light commercial/industrial. Outside the 1-mile radius, the area is primarily undeveloped rural land.

Locally, there is no central water supply, thus approximately 1000 residents rely on ground water resources for their drinking water source. Surface waters in Duval County are used exclusively for sport fishing and recreation. Agriculture near the site is limited to small gardens. The only natural resources are the surficial aquifer system and Floridan aquifer.

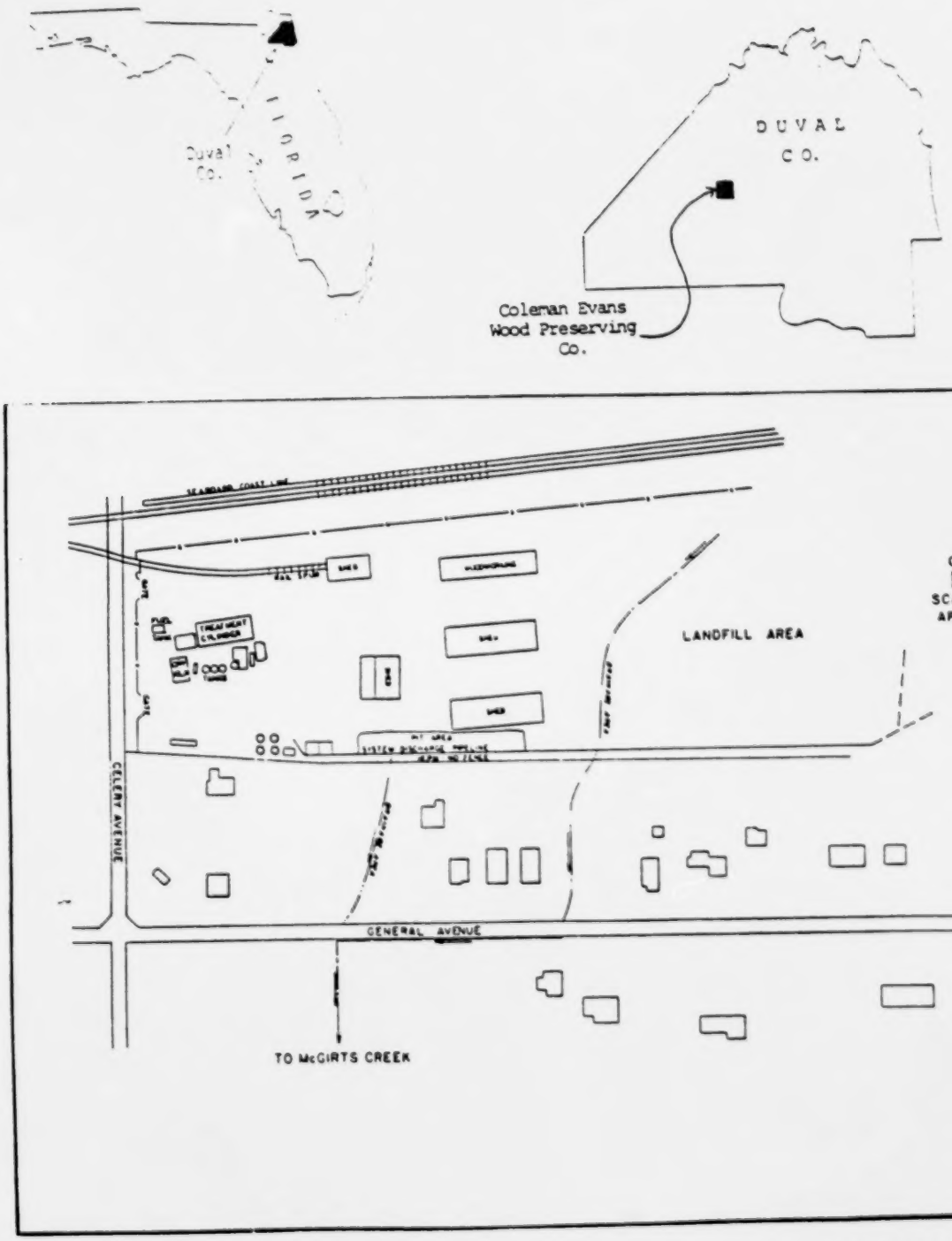

Figure 1. Coleman Evans Wood Preserving Company Site Location Map.

SECTION II
SITE HISTORY

OPERATIONAL HISTORY

Since 1954, Coleman Evans has produced preserved wood products which are impregnated with PCP. The treatment process includes steaming, drying, and pressure soaking the wood, all within a single chamber. The wood products are impregnated with PCP dissolved in #2 diesel fuel.

Prior to 1970, the process effluent was precipitated with caustic soda and aluminum sulfate, passed through a sand filter, and discharged into the onsite drainage ditch. The recovered sludge was deposited into two unlined pits onsite. The pits, located along the southern boundary, were approximately 100 feet by 50 feet and extended to unknown depths. In 1970, Coleman Evans began storing the sludge in storage tanks located adjacent to the pits. At this time, the company engaged an engineering firm to design a waste water treatment system. Treatment of the effluent with chlorination and lime precipitation was adopted to produce a clear waste water.

In September 1980, the City of Jacksonville Bio-Environmental Services Division (BES) confirmed the presence of ground water contamination on site. As a result, Coleman Evans incorporated an activated carbon filter system into the treatment process in late 1980. In 1981, the company completed the construction of a closed-loop treatment system.

PERMIT AND REGULATORY HISTORY

In June 1972, Coleman Evans received an Industrial Operation Permit from the State of Florida Department of Air and Water Pollution Control. The permit was for design and operation of a 2500 gpd industrial waste treatment system and for discharge of effluent to McGirts Creek via the onsite drainage ditch. A renewal permit was issued in September 1977 and expired in August 1980.

A National Pollution Discharge Elimination System (NPDES) Permit was issued to Coleman Evans in August 1975. Upon institution of a closed-loop system, the company allowed this permit to expire in August 1980. EPA formally inactivated the NPDES permit in June 1982.

In November 1980, Coleman Evans filed a Part A EPA Hazardous Waste Permit Application as required under Section 3005 of RCRA. In its application, the company stated that with the closed-loop system there was a capacity for storing 2000 gallons of waste. The estimated annual quantity of hazardous waste generated was 5000 gallons.

After BES confirmed the presence of ground water contamination, Coleman Evans was served a Notice to Comply for violation of ground water standards. It was under this notice that Coleman Evans submitted plans for the existing closed-loop system. In an effort to remedy violations, the company

submitted a plan and schedule for construction of the closed-loop system in April 1981. The Florida Department of Environmental Regulation (FDER) issued a construction permit in June 1981.

Also in 1981, an FDER Inspection found that Coleman Evans was in violation of RCRA hazardous waste reporting, planning, and safety requirements. FDER issued a Consent Order in November 1982 which required Coleman Evans to implement a plan for sampling, analysis, monitoring, and reporting. The company hired a contractor to assist in meeting the terms of the Consent Order. Final reports were issued by August 1983.

A further Site Inspection was conducted by FDER in April 1983. FDER found that Coleman Evans was a generator and storer of hazardous wastes, and was in violation of RCRA requirements. As a result, FDER required Coleman Evans to submit an application for a Temporary Operation Permit by April 19, 1983. No application was submitted. In September 1984, FDER filed a lawsuit against the company, seeking relief which would require the company to conduct remedial activities at the site. The suit is still pending.

In October 1981, the Coleman Evans site was proposed for inclusion on the National Priorities List (NPL) based on an Hazard Ranking Score of 59.14. The site was finalized on the NPL in March 1983.

In September 1984, EPA obligated funds for an RI/FS. By October 1984, EPA had tasked Camp Dresser and McKee, the REM II contractor, to execute the RI/FS. The field investigation was delayed by Coleman Evans' refusal to allow EPA onsite to conduct the removal and remedial activities. As a result, EPA and DOJ filed a motion in Federal Court to obtain an order granting site access. By June 1985, EPA and its agents were granted site access and field operations were initiated.

In an Immediate Removal Action, EPA excavated the contents of the two unlined pits, and the pit material was shipped to Emelle, Alabama. This action was conducted in June and July 1985. The pits were backfilled with clean material and french drains were installed.

The Remedial Investigation Report was completed in April 1986 and the draft Feasibility Study was ready for release to the public on July 21, 1986.

A public meeting to present the FS was held on August 7, 1986. The public meeting was the initiation of the public comment period which closed on August 28, 1986.

Due to the fact that Coleman Evans is an active facility which periodically continues to have releases of hazardous substances, EPA requested that Region IV RCRA personnel perform a site inspection. The EPA inspector found several RCRA infractions; however, the infractions identified are being addressed in the State of Florida's lawsuit. EPA will continue to monitor the RCRA aspects of this site.

PREVIOUS STUDIES

Several site investigations were conducted between 1980 and 1983. Studies of air, soil, ground water, surface water and sediments were conducted by federal and state agencies, as well as two consultants to Coleman Evans. During the period from August to December 1980, BES, FDER, Ecology and Environment, Inc. (E&E), and NUS Corp. conducted separate soil and ground water studies. In December 1980, Law Engineering & Testing Company (LETCO) installed and sampled monitor wells, soil test borings, and shallow soil auger holes. In June 1982, EPA conducted an air investigation, using a photo-ionization meter (PI) and an infrared spectrophotometer, and in March 1983, Groundwater Technology, Inc. (GTI) conducted a well installation and sampling program at the site. In 1985, EPA subcontracted with Haztech, Inc. to remove the contents of the onsite sludge pit. The results are summarized below.

- Air Studies - Air investigations were conducted by EPA in 1982. None of the measurements recorded VOC levels above background. The GTI investigation indicated that ambient air quality was within acceptable levels (<5.0 ug/l) except in a single borehole which had VOC levels of 14.0 ppm and in the area of the sludge pits where VOC levels were recorded to be 5.0 ug/l.

- Soil Studies - In 1980 LETCO collected three soil borings on site, however, analysis was conducted on only two of the samples. These two samples indicated PCP concentrations of 320 and 430 mg/kg. In 1983, GTI analyzed soil samples from eight locations. PCP concentrations ranged from 11 mg/kg along the southern edge of the disposal pits to 1,490 mg/kg along the northern edge of the disposal pits (refer to Figure 2 and Table 1). In addition to PCP, chromium and copper were found in 5 locations in concentrations ranging from less than 1 to 15 mg/kg (Table 2).

- Ground Water Studies - PCP contamination in the ground water of the upper surficial aquifer was confirmed by the 1980 LETCO study, the 1980 E&E study, and the 1983 GTI study (Figure 3 and Table 3). Several other organic compounds were identified during the E&E and GTI investigations (Table 4). Metals contamination was also identified during these investigations; however, only the E&E study found lead and chromium above the 1980 Water Quality Criteria. Lead was found at a concentration of 105 ug/l in monitoring well M-1 and chromium was found at 300 ug/l and 1960 ug/l in wells M-1 and M-2 respectively.

  In the E&E study for EPA and in the 1983 LETCO study, shallow auger holes were also sampled for ground water contamination. These wells, which range in depth from 2 to 5 feet below the surface, revealed PCP concentrations in the ground water ranging from 12 ug/l to 4,900 ug/l (Table 5).

  Private wells were sampled in 1980 by E&E and by the Florida Department of Health and Rehabilitative Services (DHRS). No contamination of private wells was found. This is primarily due to the presence of a competent confining unit within the surficial aquifer, below which private wells receive water, and to the low solubility level of PCP.

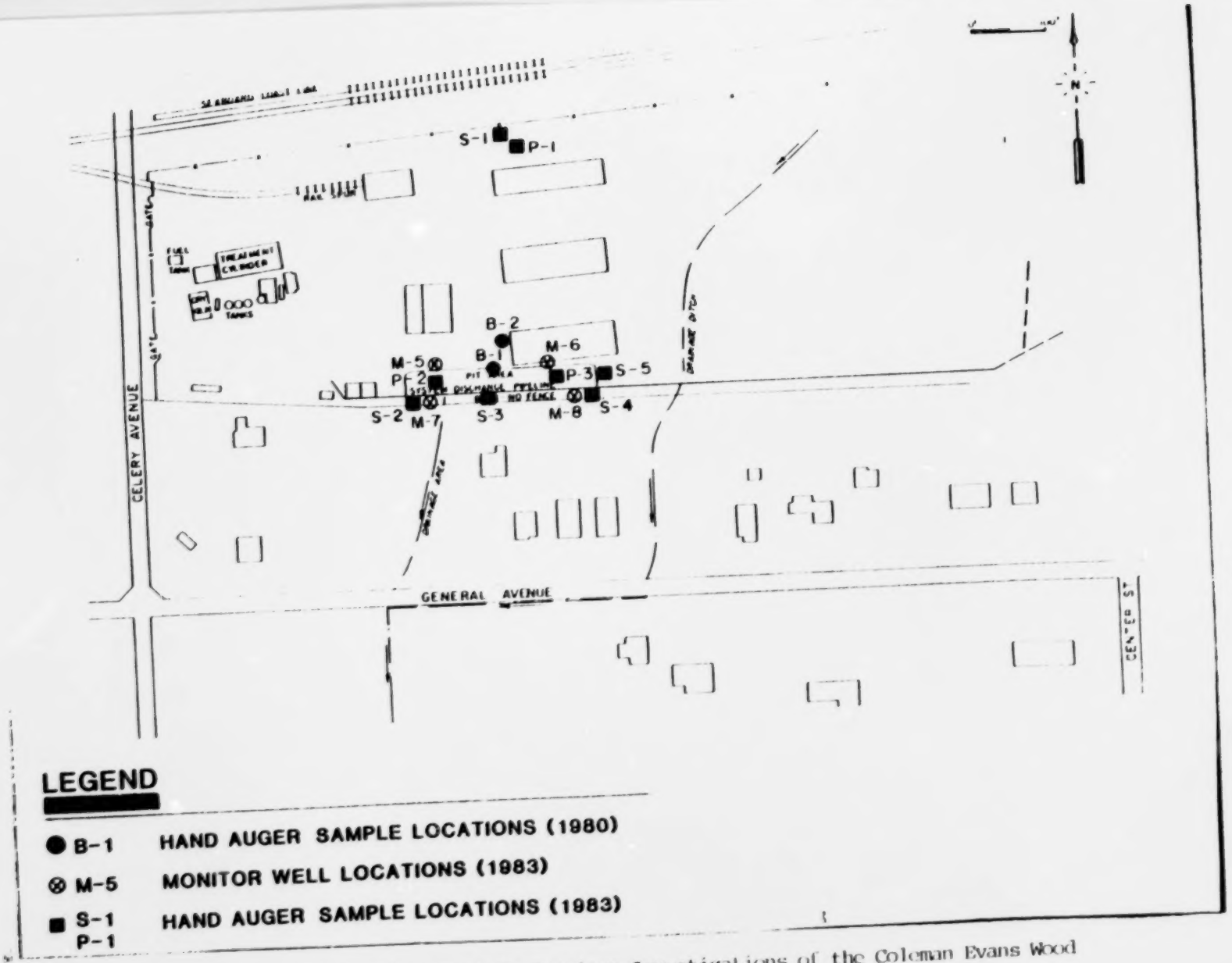

Figure 2. Soil Sample Locations Used in Previous Investigations of the Coleman Evans Wood Preserving Company Site.

Table 1. Results of Previous Soil Investigations for PCP Contamination

Location	Depth (ft)	Sample By	Date	PCP Concentrations (mg/kg)
B-1	3.5-5.0	LETCO	12/2-4/80	320
B-2	3.5-5.0	LETCO	12/2-4/80	430
P-1	0.0-3.0	GTI	3/4-14/83	<12.5
P-2	0.0-3.0	GTI	3/4-14/83	1,170
P-3	0.0-3.0	GTI	3/4-14/83	2,090
M-5	0.0-3.0	GTI	3/4-14/83	1,490
M-5	6.0-8.0	GTI	3/4-14/83	990
M-6	3.0-6.0	GTI	3/4-14/83	616
M-6	7.5-9.0	GTI	3/4-14/83	346
M-7	0.0-3.0	GTI	3/4-14/83	11.0
M-7	3.0-6.0	GTI	3/4-14/83	53.6
M-8	0.0-3.0	GTI	3/4-14/83	787
M-8	3.0-6.0	GTI	3/4-14/83	504

Table 2. Results of Previous Soil Investigations for Metals Contamination

Location	Date	Concentrations Chromium (mg/kg)	Copper (mg/kg)
S-1	3/83	4.94	4.01
S-2	3/83	3.97	1.42
S-3	3/83	4.69	1.56
S-4	3/83	15.46	12.55
S-5	3/83	4.55	<1.0

Source: LETCO, 1981

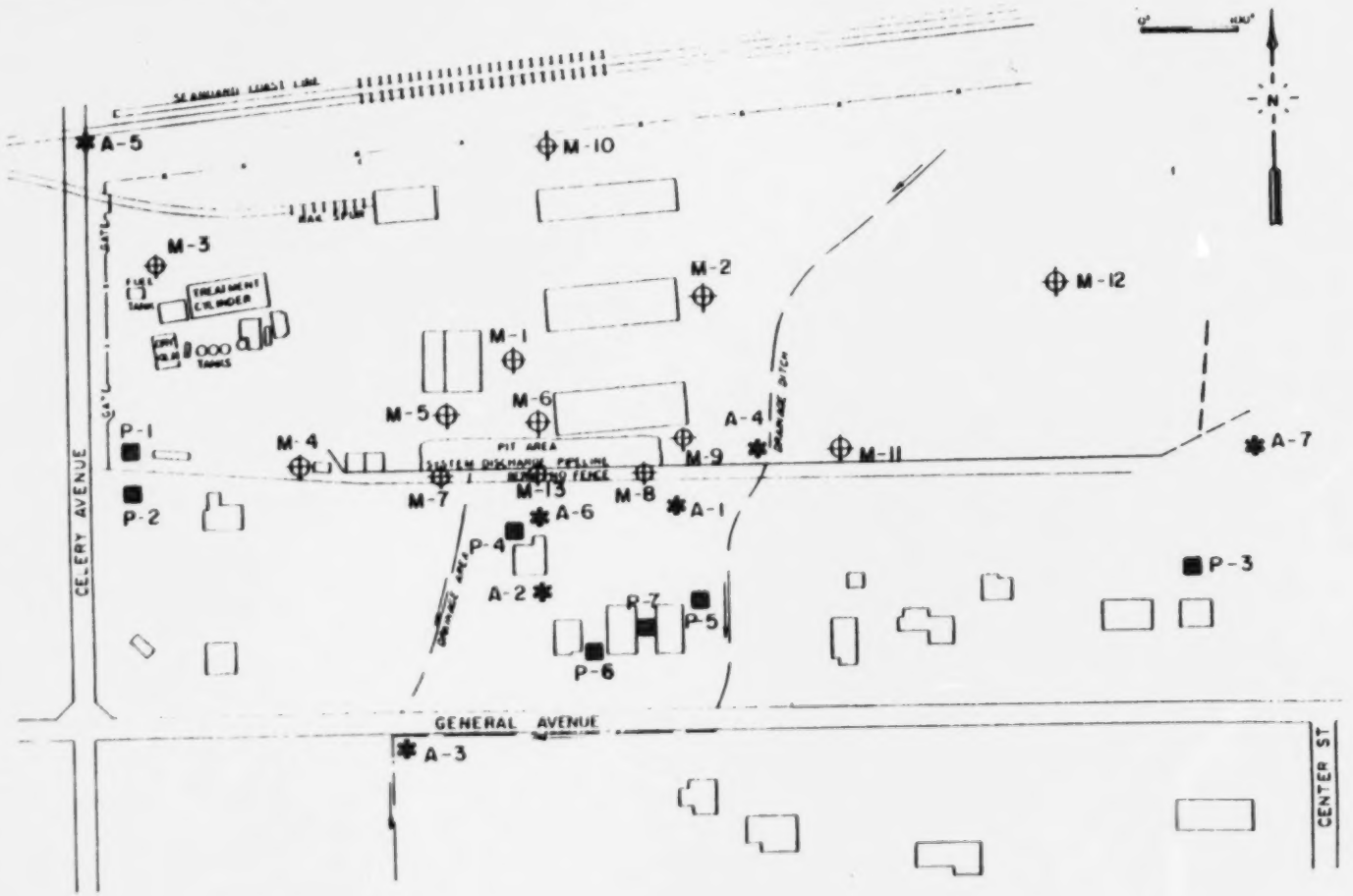

Figure 3. Pentachlorophenol Ground Water Sampling Locations Used in Previous Investigations of the Coleman Evans Wood Preserving Company Site.

Table 3. Results of Previous Ground Water Investigations for PCP Contamination.

Location	Depth (ft)	Sample By	Date	PCP Concentrations (ug/l)
M-1	13	E&E	12/16/80	4,000
M-2	13	E&E	12/16/80	12,000
M-3	15	GTI	3/4-14/83	ND
M-4	15	GTI	3/4-14/83	1,480
M-5	15	GTI	3/4-14/83	332
M-6	15	GTI	3/4-14/83	1,370
M-7	15	GTI	3/4-14/83	525
M-8	15	GTI	3/4-14/83	714
M-9	15	GTI	3/4-14/83	560
M-10	15	GTI	3/4-14/83	ND
M-11	15	GTI	3/4-14/83	ND
M-12	14.5	LETCO	12/2-4/80	2,000
M-13	14.5	LETCO	12/2-4/80	3,200

ND - none detected

Table 4. Results of Previous Ground Water Investigations for Contamination by Chemicals Other than PCP.

	Concentrations in ug/l										
	M-1	M-2	M-3	M-4	M-5	M-6	M-7	M-8	M-9	M-10	M-11
Naphthalene	15	16	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	16	75	--	--	--	58.3	15.7	--	--	--	--
Di-n-octylphthalate	--	--	--	--	--	--	55.3	--	--	--	--
Anthracene	--	23	--	--	--	--	--	--	--	--	--
Phenanthrene	--	23	--	--	--	--	--	--	--	--	--
Phenol	170	680	--	--	--	41.5	12.9	--	--	--	--
Toluene	86	300	--	--	--	--	--	14.3	--	--	--
Di-n-butyl phthalate	--	--	--	--	--	10.6	--	10.6	--	--	--
Fluorene	--	--	--	--	--	19.7	--	--	--	--	--
Isophorone	--	--	--	--	--	--	10.3	--	--	--	--

-- - none detected

Source:
Ecology and Environment, Inc., 1980 (MW-1 and MW-2)
Groundwater Technology, Inc., 1983 (Wells Other Than MW-1 and MW-2)

Table 5. Results of Previous Auger Hole Ground Water Investigations for PCP Contamination.

Location	Depth (ft)	Sampled By	Date	PCP Concentrations (ug/l)
A-1	5.0	BES	9/9/80	537
A-2	3.0	BES	9/9/80	4,800
A-3	2.0	BES	9/9/80	12
A-4	3.0	BES	9/9/80	1,070
A-5	7.0	BES	9/9/80	12
A-6	5.0	LETCO	12/2-4/80	4,900
A-7	5.5	LETCO	12/2-4/80	20

- Surface Water Studies - The 1983 GTI investigation documents the existance of contaminated surface water runoff. During a rainstorm on March 7, 1983, GTI collected two samples from the onsite drainage ditch (Figure 4). The upgradient sample (SW-2) contained less than 10 ug/l of PCP in background runoff. The downgradient sample (SW-1) yielded 1,760 ug/l of PCP.

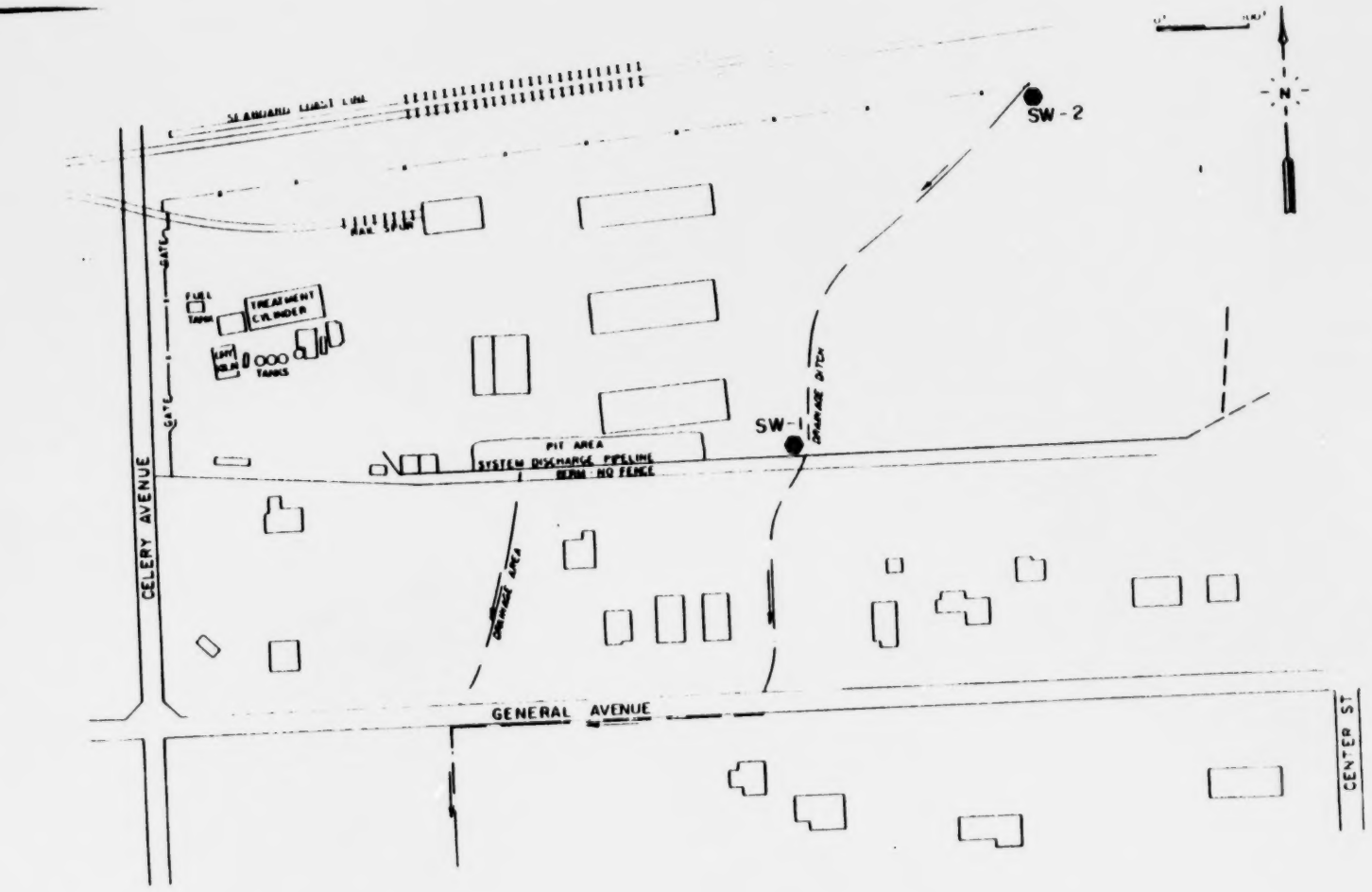

Figure 4. Surface Water Sampling Locations Used in the 1983 Groundwater Technologies, Inc. Surface Water Investigation at the Coleman Evans Wood Preserving Company Site.

SECTION III
CURRENT SITE STATUS

Soils

Soil samples were collected from seven well defined areas as shown in Figure 5. The collection areas were based on operation sites. Samples were analyzed by an onsite laboratory, a local laboratory, and a Contract Laboratory Program facility in a three-tiered quality control program.

The areal extent of PCP contamination at a one foot depth, as shown in Figure 6, includes the landfill area in the eastern portion of the site, a broad area east of the treatment cylinder, a broad east-west trending area comprising the waste pits and storage tanks, and the north-south drainage ditch which is south of the Coleman Evans property. Although the pattern of PCP occurrences is similar for both of the depth intervals sampled, the 3-foot interval (Figure 7) was found to contain the highest concentration. This is reasonable, because the PCP-laden oil was observed to float on the water table, which typically fluctuates from two to five feet below the surface.

The vertical extent of contamination was identified from soil samples collected at 5-foot intervals from 12 boreholes (Figure 8). Only trace levels of PCP were found in boreholes located along the northern portions of the site; however, boreholes 38, 40, 41, 44, and 49 encountered PCP concentrations above background levels (Table 6). Generally, PCP contamination was limited to the upper 10 feet of the soils, except in two boreholes which showed PCP contamination to a depth of approximately 35 feet; however, contamination found at depth did not exceed action levels.

Several metals such as arsenic, cyanide, mercury, thallium, and vanadium, were also identified in onsite soil samples; however, the Public Health Evaluation (Appendix A, FS) states that the metals occur at levels below or within the normal ranges found in typical soils of the southeastern United States. Therefore, metals are not of concern at this site.

CLP data confirmed the presence of onsite PCP contamination. The only other chlorinated phenol detected in onsite soil was at sample location D-50, which contained tetrachlorophenol at an estimated concentration of 4,000 ug/kg. Additional organic contaminants detected include, but are not limited to, a variety of napthalenes, alkanes, and xylenes, which are thought to be associated with the fuel oil. Also found was Aroclor 1254, a polychlorinated biphenyl (PCB), which was found at sample F-29 at a concentration of 30,000 ug/l.

Several samples contained compounds that have been identified as possible laboratory contaminants. These include acetone, methyl ethyl ketone, methylene chloride, and bis (2-ethylhexyl) phthalate.

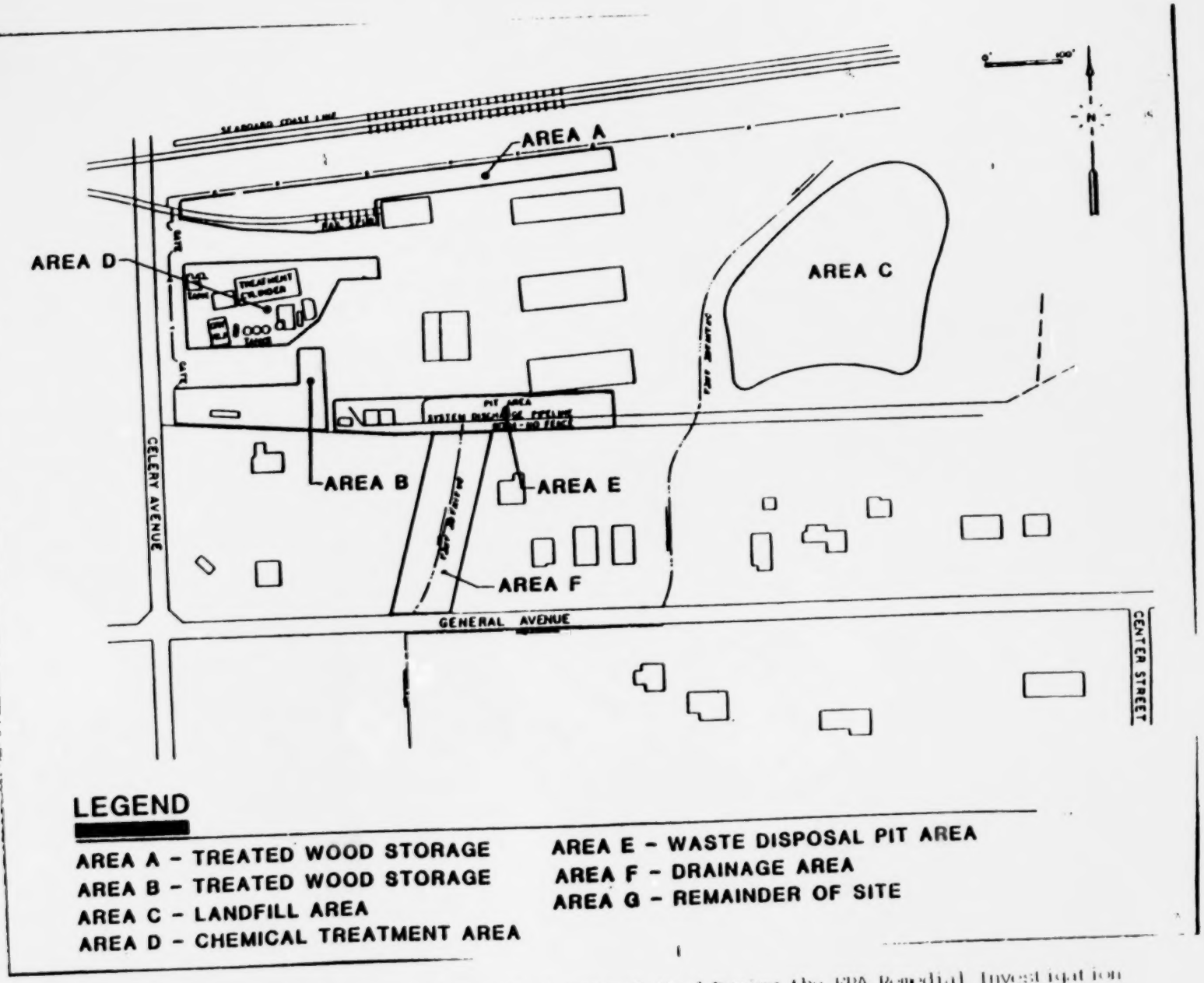

Figure 5. Onsite Soil Sampling Areas (A through G) Used During the EPA Remedial Investigation Field Study.

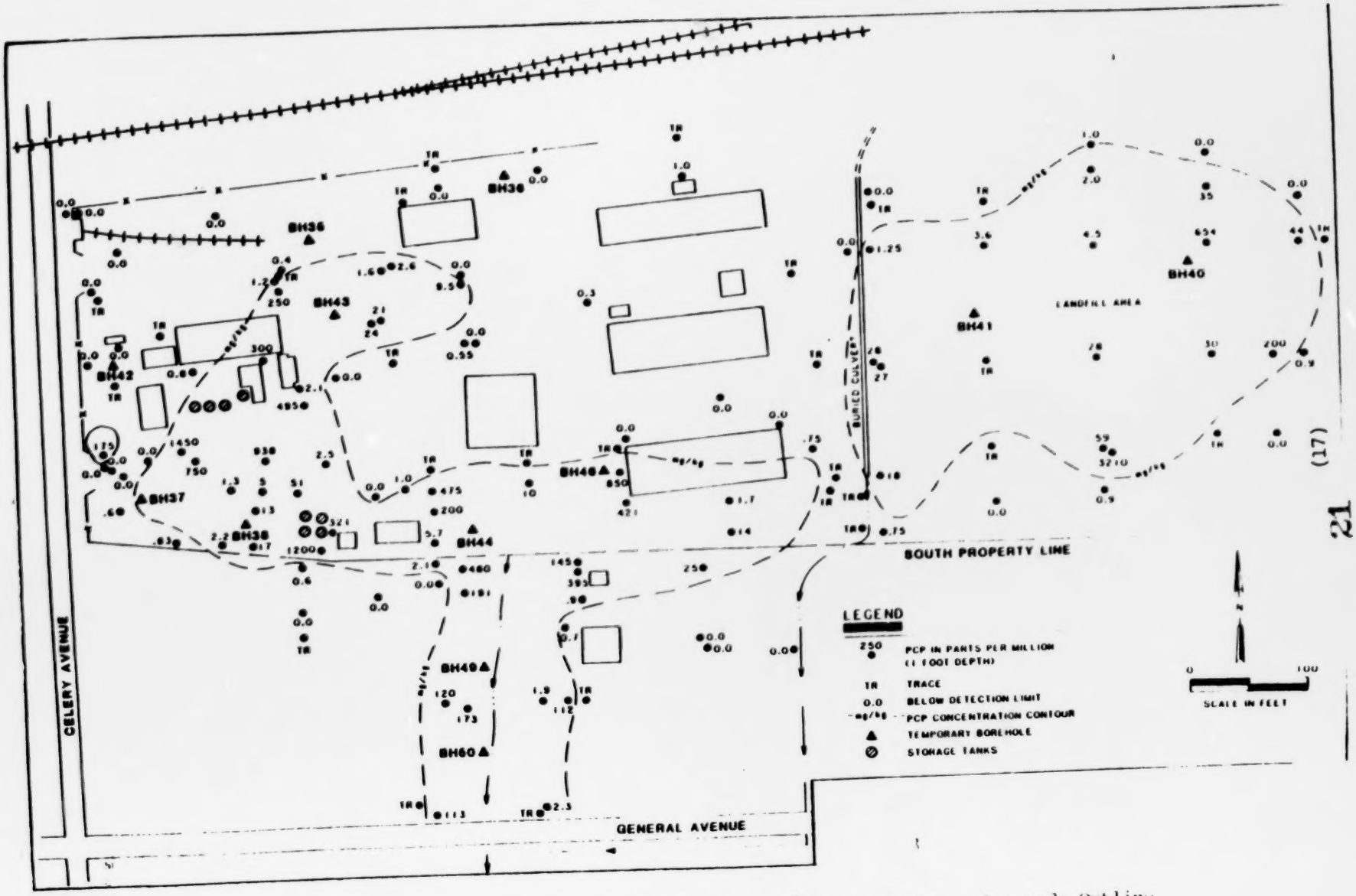

Figure 6. Pentachlorophenol Concentrations in Soils at a Depth of One Foot. Isograds Outline Areas with Pentachlorophenol Concentrations Greater than 1 mg/kg.

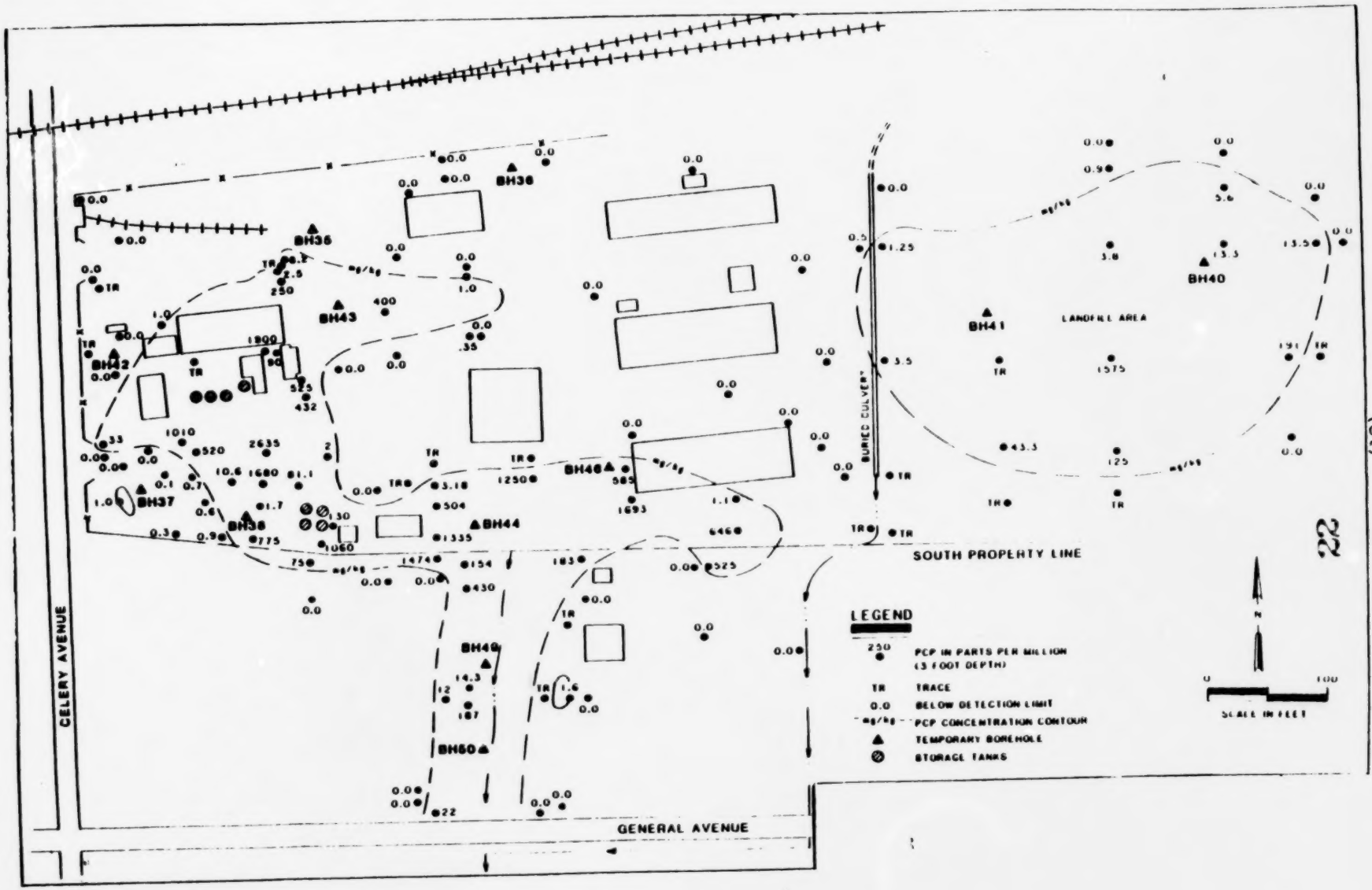

Figure 7. Pentachlorophenol Concentrations in Soil at a Depth of Three Feet. Isograds Outline Areas with Pentachlorophenol Concentrations Greater than 1 mg/kg.

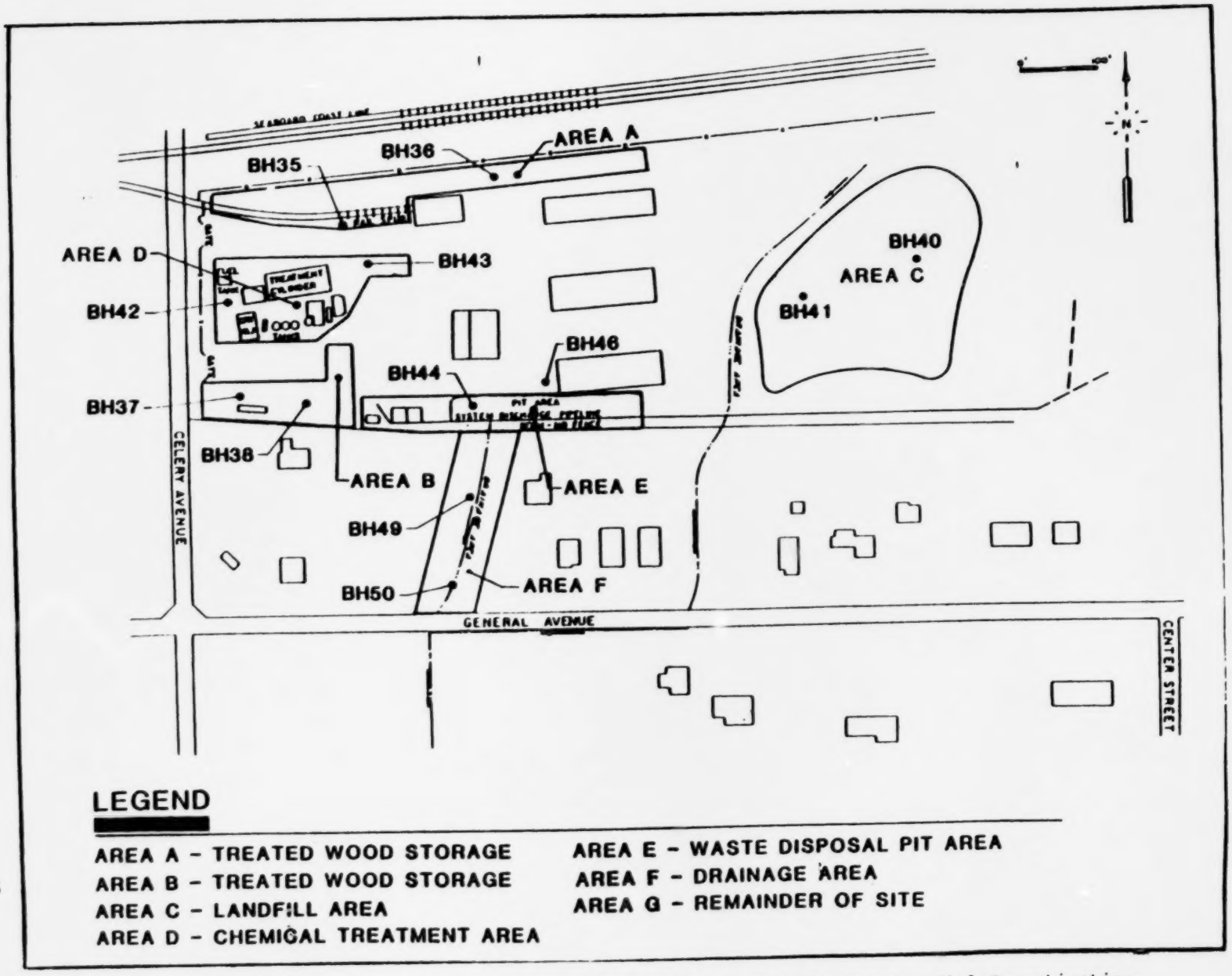

Figure 8. Location Map of Boreholes Used for Soil Samples During the EPA Remedial Investigation.

(19)

Table 6. Results of PCP Analyses of Soil Samples Collected from Boreholes During the EPA Remedial Investigation.

Sample Code	Depth (ft bls)	PCP in Soil (mg/kg) Onsite Lab	Dup. Onsite Lab	Local Lab	Dup. Local Lab	CLP
CES-						
BH-35-1	5	ND				
BH-35-2	10	ND				
BH-35-3	15	ND				ND
BH-35-4	20	ND				
BH-35-5	25	ND				ND
BH-35-6	30	ND				
BH-36-1	5	ND				
BH-36-2	10	tr				
BH-36-3	15	ND		0.04		ND
BH-36-4	20	ND				
BH-36-5	25	tr		0.06		ND
BH-36-6	30	ND				
						ND
BH-37-1	5	ND				
BH-37-2	10	ND				
BH-37-3	15	ND				
BH-37-4	20	ND				ND
BH-37-5	25	ND	ND			
BH-38-1	5	1,025		585		
BH-38-2	10	37				
BH-38-3	15	205				
BH-38-4	20	2.3				
BH-38-5	25	0.09				ND
BH-38-6	30	tr				
BH-38-7	35	tr		0.3		
BH-38-8	40	ND				ND
BH-38-9	45	tr				
BH-38-10	50	tr				
						ND
BH-40-1	5	10				
BH-40-2	10	.45				
BH-40-3	15	tr				
BH-40-4	20	tr				
BH-40-5	25	tr				ND
BH-40-6	30	tr				

Table 6 (cont.). Results of PCP Analyses of Soil Samples Collected from Boreholes During the EPA Remedial Investigation.

Sample Code	Depth (ft bls)	PCP in Soil (mg/kg) Onsite Lab	Dup. Onsite Lab	Local Lab	Dup. Local Lab	CLP
CES-						ND
BH-41-1	5	0.6				
BH-41-2	10	tr				
BH-41-3	15	tr				
BH-41-4	20	ND				
BH-41-5	25	tr				ND
BH-41-6	30	ND				
						ND
BH-42-1	5	ND				
BH-42-2	10	ND				
BH-42-3	15	BH				
BH-42-4	20	ND				ND
BH-42-5	25	ND	ND			
						ND
BH-43-1	5	tr				
BH-43-2	10	ND				
BH-43-3	15	ND				
BH-43-4	20	ND				
BH-43-5	25	ND				ND
BH-43-6	30	ND	ND			
BH-44-1	5	2.1				
BH-44-2	10	15.1		<1.6		1.6
BH-44-3	15	0.9				
BH-44-4	20	ND				2.7
BH-44-5	25	7.0				
BH-44-6	30	1.25				
BH-44-7	35	ND				ND
BH-46-1	5	ND				
BH-46-2	10	ND				
BH-46-3	15	ND				
BH-46-4	20	ND				
BH-46-5	25	ND				ND
BH-46-6	30	ND	ND			
				0.1		
BH-49-1	5	tr				
BH-49-2	10	1.1		<1.6		0.54
BH-49-3	15	0.45				
BH-49-4	20	tr		0.3		ND
BH-49-5	25	tr				

Table 6 (cont.). Results of PCP Analyses of Soil Samples Collected from Boreholes During the EPA Remedial Investigation.

Sample Code	Depth (ft bls)	PCP in Soil (mg/kg)						
		Onsite Lab	Dup. Onsite Lab	Local Lab	Dup. Local Lab	CLP
CES-BH-50-1	5	tr				
BH-50-2	10	ND				
BH-50-3	15	ND				ND
BH-50-4	20	ND				
BH-50-5	25	ND				ND
BH-50-6	30	ND				
BH-50-7	35	ND	tr			

ND Not Detected Above Detection Limit
tr trace (<0.45 mg/kg)

Surface Water and Sediments

Surface water and sediment samples were collected at the locations shown in Figure 9. The background sediment sample, SD-15, taken upgradient along McGirts Creek, was found to contain a suite of metals, which included antimony (69 mg/l), lead (11 mg/kg), mercury (0.13 mg/kg), and nickel (31 mg/kg). The surface water sample (SW-15) collected at this location, was estimated to contain 9 ug/l chromium. Neither sample contained organic compounds above the laboratory detection limits (Table 7).

Analyses of stream and stream sediment samples revealed the presence of PCP in the water and sediments of the drainageway leading from the site to McGirts Creek. Surface water concentrations near the site exceed the surface water criteria established in Chapter 17-3061.3 (M) FAC, but attenuate to below these criteria prior to reaching General Avenue. The mechanism for this attenuation is probably a combination of dilution in water and adsorption to soils. Sediment samples were found to contain low levels of PCP south of General Avenue, and no indication of PCP at McGirts Creek.

HYDROGEOLOGY

Groundwater Characteristics

At the Coleman Evans site groundwater contaminants were identified in the upper portion of the water table zone of the Surficial Aquifer System. The Surficial Aquifer System is comprised of three units: the water table zone, the semi-confining unit, and the limestone unit. In the site area private groundwater supplies are obtained from the limestone unit which is locally well-protected by the semi-confining unit. Groundwater flows to the south and south west of the site.

Groundwater Contaminants

Groundwater samples were collected from 12 new monitoring wells (Figure 10) and 13 private wells (Figure 11). The well samples were analyzed under the CLP program, and no contaminants except for methylene chloride were found, but it was identified as a laboratory contaminant.

New monitoring well sample results are presented in table 8. The only metals identified with concentrations above existing standards were beryllium and magnesium, but based on the soils data, this occurrance is believed to be natural. Several compounds were identified in background wells and in blank water samples and cannot be attributed to the site. These compounds are bis (2-ethylhexyl) phthalate, hexahydroxepinone, acetone, and toluene.

Several compounds were identified downgradient from the site, but not onsite, carbon disulfide, 1,1,1-dichloroethane, and 3,3-dichlorobenzene. Finally, PCP was identified in four onsite boreholes, but only BH-40 contained levels above the 1980 Water Quality Criteria of 1.01 mg/l.

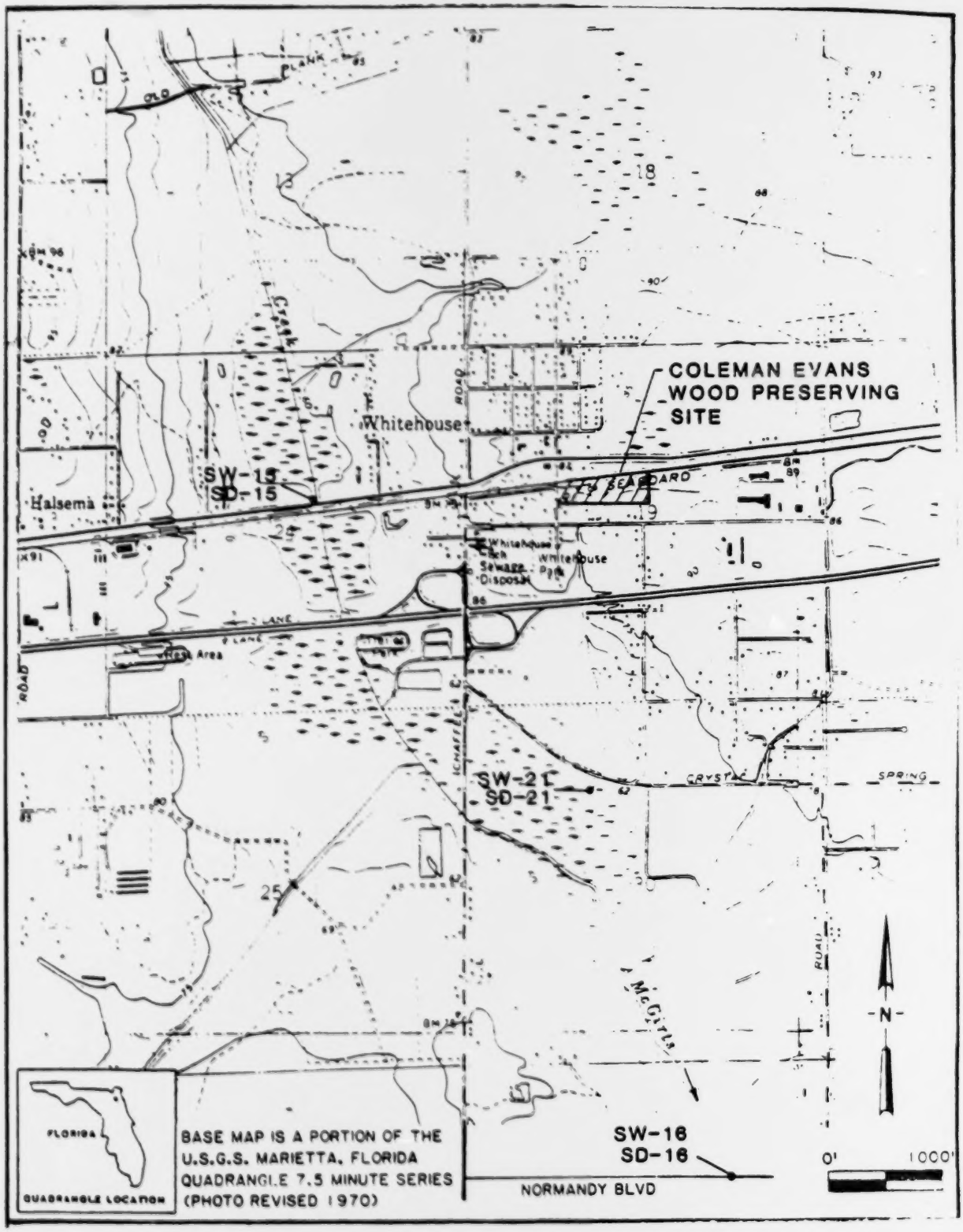

Figure 9a. Locations at which Surface Water and Sediment Samples were Collected During the EPA Remedial Investigation.

(24)

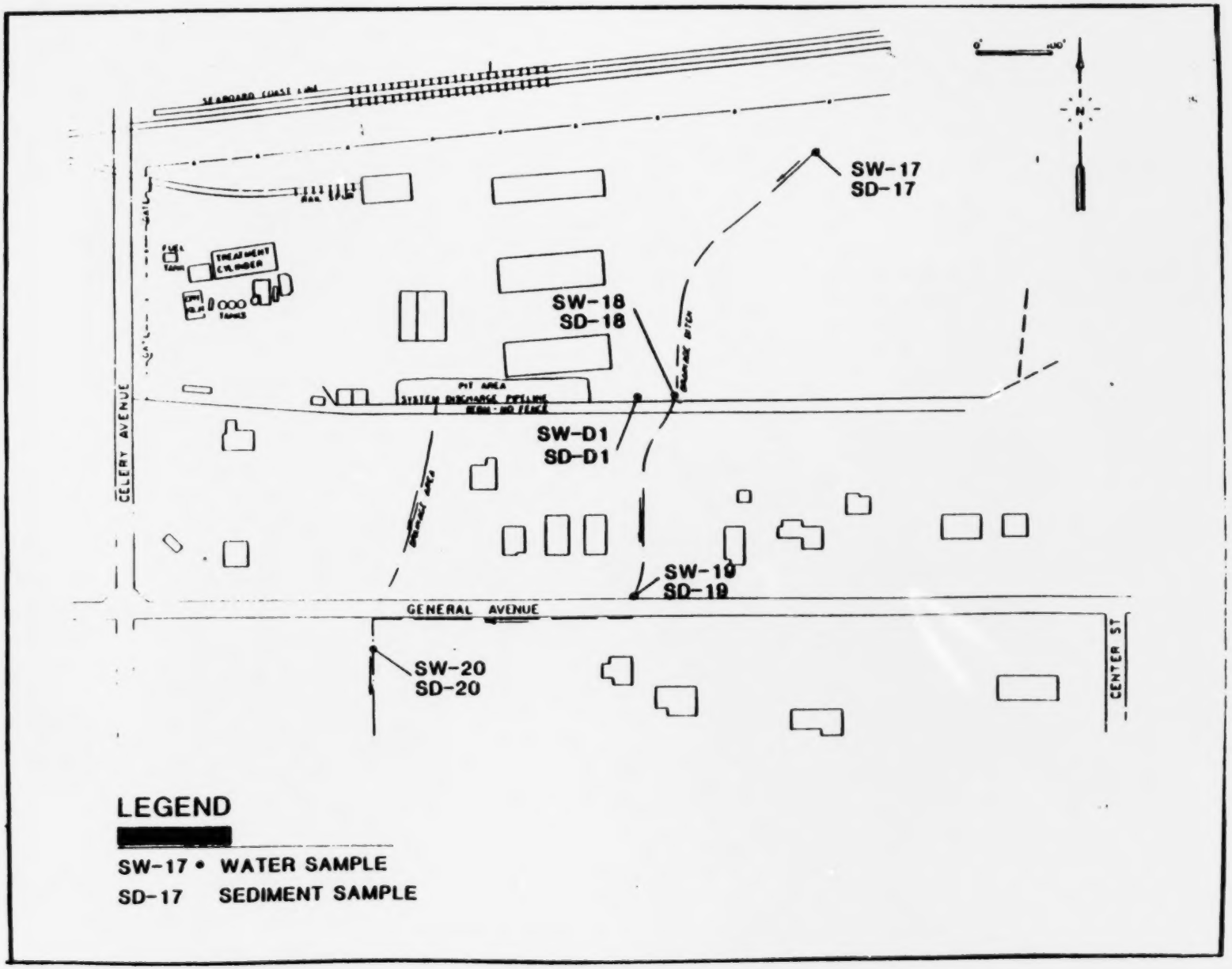

Figure 9b. Locations at which Surface Water and Sediment Samples were Collected During the EPA Remedial Investigation.

(25)

Table 7. Analytical Results of Surface Water Samples Collected during the Remedial Investigation. Concentration Presented in Micrograms per Liter (ug/l).

	Sample Location Number							
	SW-15	SW-16	SW-17	SW-18	SW-19	SW-20	SW-21	SW-D1
Pentachloro-Phenol				4700x	77x	360x		3100x
C-11 Alkene					30x*			
Total Xylenes				7.1x				7.7x
Aluminum	870x	790x	640x	240x	570x	600x	410x	200x
Antimony					61x		58x	55x
Arsenic		6.5						
Cadmium					7x			
Chromium	9x	9x						
Cobalt					11x			
Iron	880x	760x	960x	360x	1000x	1100x	1200x	430x
Lead						2.8x	2.2x	
Magnesium	1400x	1600x	5800x	2800x	5700x	6000x	4900x	2800x
Manganese	29x	27x	21x	48x	28x	33x	25x	62x
Potassium				1200x			1200x	1200x
Silver				7x				6x
Sodium	6900x	4800x	20,000x	7000x	22,000x	21,000x	23,000x	8300x
Tin				31x			42x	
Zinc	26x		15x		18x	21x	44x	

x = estimated value
* = tennatively identified compound

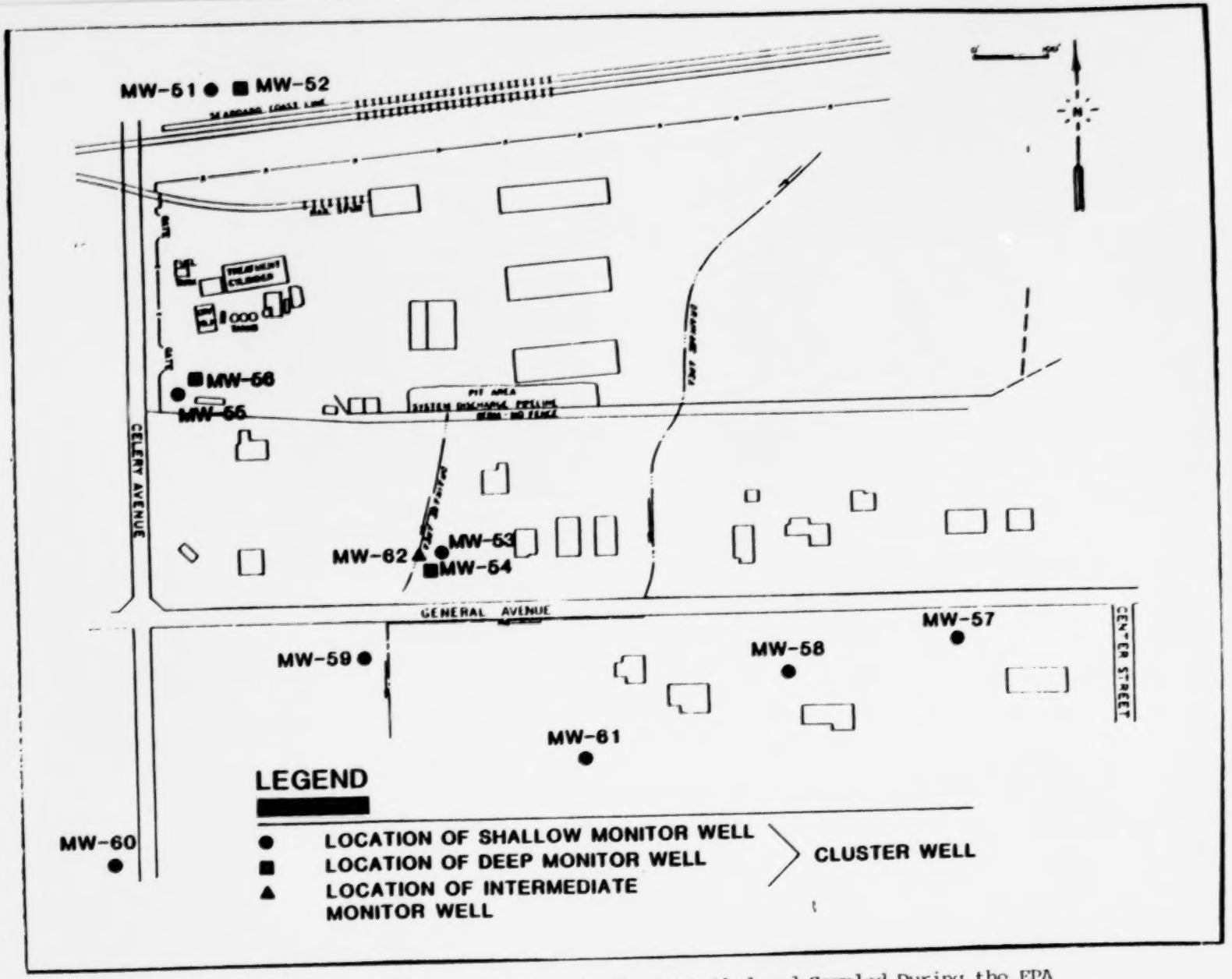

Figure 10. Location Map of New Monitoring Wells Installed and Sampled During the EPA Remedial Investigation.

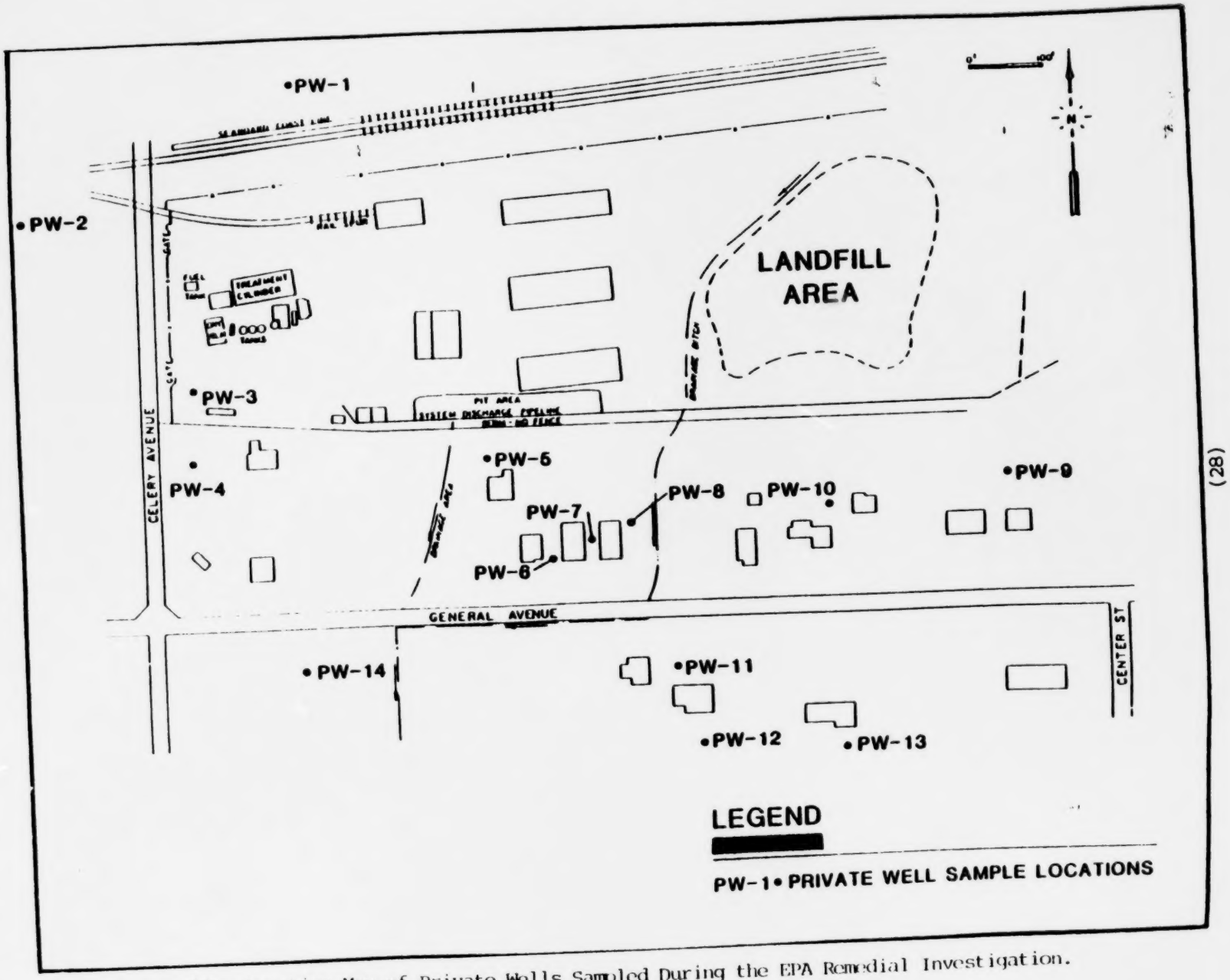

Figure 11. Location Map of Private Wells Sampled During the EPA Remedial Investigation.

Table 8. Analytical Results of Ground Water Samples Collected from New Monitoring Wells Installed During the Remedial Investigation. Concentration Presented in Micrograms per Liter (ug/l).

	Well Identification Number					
	MW-51	MW-52	MW-53	MW-54	MW-55	MW-56
3,3-Dichloro-benzidine						
Carbon Disulfide					11	
1,1-Dichloro-ethane						
Aluminum	3100	410	880	380	1800	380
Beryllium					6.0	
Cadmium						
Calcium		60,000	8900	71,000	11,000	110,000
Chromium	18	24		30		
Copper						
Iron	790	470	2500	270	2000	470
Lead	7.2x	21x	7.8x			5.9x
Magnesium		2300	2300	3200		3400
Manganese	20	22	58	21	37	41
Potassium	4600x	53,000x	6000x	24,000x	2800x	17,000x
Selenium	5.5x					
Sodium	22,000	26,000	89,000	18,000	40,000	19,000
Zinc		85x	23x			30x

x = estimated value

Table 8 (cont.). Analytical Results of Ground Water Samples Collected from New Monitoring Wells Installed During the Remedial Investigation. Concentration Presented in Micrograms per Liter (ug/l).

	Well Identification Number					
	MW-57	MW-58	MW-59	MW-60	MW-61	MW-62
3,3-Dichloro-benzidine				200		
Carbon Disulfide	8.1x	4.3x		6.2x		8.6x
1,1-Dichloro-ethane		4.3x				
Aluminum	810	440	550	860	1200	1400
Beryllium		7.0x				
Cadmium						
Calcium	3800	3400	3600		3100	
Chromium	11			11		13
Copper						46
Iron	4200	3600	2700	2800	4200	1300
Lead		6.0x		6.7x	5.7x	9.4x
Magnesium			2500		2800	
Manganese	61	69	28	20	33	
Potassium	3100x	4800x	2800x	4200x	2700x	6000x
Selenium						7.4x
Sodium	14,000	33,000	24,000	22,000	24,000	36,000
Zinc	39x	21x	41x	102x	89x	26x

x = estimated value

SECTION IV
ENFORCEMENT ANALYSIS

As noted in Section II of this document, the Coleman Evans Wood Preserving Company has been involved in litigation with both the State of Florida and U.S EPA. In September 1984, Florida filed suit against Coleman Evans seeking relief which would require the company to perform both short-term and long-term remedial actions at the site. That suit is ongoing and has recently been amended to include charges of violation of RCRA requirements. In October 1984, EPA issued an administrative order pursuant to Section 106 of CERCLA, requiring Coleman Evans to conduct sampling and perform immediate removal activities. Coleman Evans refused to comply with the order, and denied EPA access to the site to perform the response activities. Therefore, in March 1985, EPA filed a motion in Federal Court, seeking an order which would permit EPA to enter the site and conduct response activities. That motion was granted and EPA conducted an immediate removal action in June 1985.

During the public comment period which followed the release of the RI/FS, Coleman Evans submitted a proposal for remedial action at the site. That proposal suggested treatment of the contamination by biodegradation. As noted in Section V, that alternative has been rejected due to concern over the extensive time period required and the possibility of incomplete digestion of PCP leaving a dioxin residue.

Upon finalization of the Record of Decision, the Agency intends to formally notify the company of the remedy which has been selected, and initiate negotiations with them for the conduct of the remedy. If the company does not formally commit to perform the remedy, and provide assurances that adequate funding is available to complete the remedy in a timely manner, EPA will proceed with a Fund-financed Remedial Design/Remedial Action.

It is important to note that implementation of the remedy recommended in this Summary of Remedial Alternative Selection may temporarily disrupt operations at the Coleman Evans Wood Preserving Company during the implementation of the Remedial Action. The extent of the disruption, if any, will be determined during design of the selected remedy.

SECTION V
ALTERNATIVES EVALUATION

PUBLIC HEALTH AND ENVIRONMENTAL OBJECTIVES

Public Health. The public health threat posed by the Coleman Evans Site, as identified in Public Health Evaluation (Appendix A, FS), is minimal. Several exposure pathways are complete including physical contact with the contaminated soils, sawdust, and surface waters, inhalation of airborne particulates, and the potential for ingestion of contaminated ground water. The Public Health Evaluation found that the site currently appears to pose significant health threat based on the levels of contamination which were identified in the Remedial Investigation, but potential exposures are a risk.

Environmental Concerns. The surface water levels of PCP identified in the remedial investigation indicated that the site poses a threat to aquatic species. Unless the PCP runoff into the drainage ditch and ultimately into McGirts Creek is prevented, there is significant potential for adverse environmental impact.

Alternatives Considered

Several alternatives were considered for remediating the Coleman Evans site. The alternatives were presented in groups targeted at remediating a single aspect of the site. Table 9 shows the technologies identified for remediation of the ground water contamination (Group A alternatives), and technologies considered for remediation of soil contamination (Group B alternatives).

Several combinations of group A and group B alternatives will provide remedial actions which comply with applicable environmental laws. One example is a combination of ground water recovery and treatment (Group A), and containment/encapsulation (Group B). Ground water recovery and treatment will respond to issues raised under the Clean Water Act (CWA), the Toxic Substances Control Act (TSCA), and the Resource Conservation and Recovery Act (RCRA). These same laws are also addressed by containment encapsulation of the landfill material.

Screening of Technologies

Potential remedial alternatives identified for the Coleman Evans site were initially screened on the basis of technical feasibility and level of protection provided to public health. For example, biological degradation of PCP was eliminated during the initial screening phase because of the protracted time frame necessary to accomplish cleanup and because incomplete degradation can lead to a residue of dioxin in the soils. Similarly, thermal treatment was eliminated because this technology does not provide any additional effectiveness compared to incineration of soils and it is not cost effective compared to incineration.

Table 9. Technologies Considered for Remediation of the Coleman Evans Site.

A. Ground Water Technologies (Group A Alternatives)

1. Treatment Technologies
   a. Flocculation, Sedimentation, and Filtration
   b. Activated Carbon Adsorption

2. Recovery and Disposal Technologies
   a. Recovery
   b. Surface Water Discharge
   c. Ground Water Recharge *

B. Soils Technologies (Group B Alternatives)

1. Treatment Technologies
   a. Off Site Disposal
   b. Solidification and Stabilization
   c. Incineration
   d. Solvent Extraction
   e. Thermal Treatment *
   f. Land Treatment *
   g. Insitu Biodegradation *
   h. Containment and Encapsulation
   j. Surface Capping

2. Recovery Transport
   a. Excavation
   b. Transportation

(*) = Denotes technologies which were eliminated during the preliminary screening phase.

The next phase of alternatives screening was based on a detailed review of each remedial alternative based on site specific criteria. The second phase review considered technical feasibility, the level of public health and environmental protection provided, and on a relative cost-estimate basis. The alternatives eliminated during this phase are listed in Table 10.

The alternatives which were retained after screening were then described in detail with regard to engineering considerations, equipment needs, operation and maintenance needs, monitoring requirements, health and safety, permitting requirements, scheduling projections, and cost estimates.

Technologies Eliminated

Several alternatives were eliminated in the preliminary screening phase and in the detailed screening. The following is a list of remedial options which were eliminated during the screening phases and the reasons for elimination.

Ground Water Technologies.

Ground Water Recharge. Due to the locally high water table, ground water recharge of recovered ground water would likely flood the surface environment. This alternative was eliminated in favor of discharge to surface waters.

Flocculation, Sedimentation, and Filtration. This technology is feasible and the risks to worker safety and the environment are short-term. However, carbon adsorption was found to be equally feasible and had none of the short-term risks. Therefore, this remedy was screened out in favor of carbon adsorption.

Soil Technologies.

Thermal Treatment. Thermal treatment was eliminated because the effectiveness of this technology is equivalent to incineration, but incineration is significantly more cost effective.

Land Treatment. This technology requires a large land area, extensive material transport and handling, and extensive monitoring. Other technologies identified have fewer implementation constraints and are equally effective.

In Situ Biological Destruction. Incomplete digestion of PCP could leave dioxin by-products. Biological treatment requires extensive pilot testing and the time involved in execution of this technology is protracted.

Table 10. Technologies Eliminated During the Coleman Evans Wood Preserving Company Feasibility Study Screening Process.

TECHNOLOGIES ELIMINATED	REASON
Ground Water Technologies	
Flocculation, Sedimentation, and Filtration	Carbon adsorption is equally effective and less expensive
Ground Water Recharge	Recharge rates are too slow for effective implementation
Soils Technologies	
Thermal Treatment	Incineration is equally effective and less expensive
Land Treatment	Requires large areas of land and long term (30 years) monitoring
In Situ Biodegradation	Requires extensive testing, long implementation period, and may leave dioxin residuals

ALTERNATIVES RETAINED

Several technologies were retained for final consideration as alternatives for remediating the site. Those alternatives retained are listed in Table 11. With the exception of the No Action Alternative and surface capping, all technologies inherently include ground water recovery and treatment due to the fact that these technologies require dewatering for excavation.

Each of the remaining alternatives was evaluated based on technical feasibility, environmental impact, and public health concerns (Table 12). The present worth and operations and maintenance costs are presented in Table 13. Technologies which were found to be feasible for the Coleman Evans site are described below.

Ground Water Technologies

Alternative 1. Well Point Ground Water Recovery, Carbon Adsorption, and Surface Water Discharge. This technology involves a mobile well point configuration for recovery of contaminated ground water and for dewatering of excavation areas. Recovered ground water would be analyzed, and treated if contamination is found. Treatment will involve passing contaminated ground water through a carbon adsorption unit. This technology is well proven and can have removal efficincies up to 99%. Discharge would be to the surface water environment. The contaminant concentration in effluent must be less than 1 ug/l in order to comply with State surface water standards for PCP.

All excavation technologies inherently will require use of this recovery/ treatment/disposal option. Therefore, this technology has been included in all excavation options, and carbon adsorption has not been cost evaluated as a single item.

Soil Technologies

Alternative 1 - Surface Capping. This option involves leaving contaminated soils in place and constructing a RCRA-approved cap over identified areas of PCP soil contamination. A cap will prevent runoff of PCP into the surface water environment, reduce air emissions, and prevent further migration of PCP into the soils.

Alternative 2 - Containment and Encapsulation. This technology consists of constructing an impermeable barrier, excavating the contaminated soils and placing the soils within the impermeable barrier, and capping the soils to provide full encapsulation onsite. Ultimately, the contaminated soils would be removed from contact with the environment.

Alternative 3 - Solidification and Stabilization. This technology would require excavation of contaminated soils and solidification by using a mixture of soils with either a cement - based process or other pozziline process, and on-site storage to solidify the contaminated soils. Although pilot testing would be required, this technology will reduce the solubility or mobility of the wastes or may detoxify the contaminants.

TABLE 11. Remedial Technologies Retained for Detailed Evaluation.

1. Surface Capping
2. Containment/Encapsulation*
3. Solidification and Stabilization*
4. Off Site Disposal*
   a. Emelle, Alabama
   b. Pinewood, South Carolina
5. Incineration *
6. Solvent Extraction *
7. No Action

(*) = Denotes technologies that inherently require groundwater recovery operations to facilitate excavation activities.

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Table 12. Summary of Evaluation of Remedial Alternatives.

Alternative	Technical Feasibility	Environmental Impact	Public Health Concerns	Institutional Requirements
1. Surface Capping Cost Confidence Unit Cost Range* 37.85 to 45.51	Conventional equipment & procedures are used for capping.	Reduces air emissions, surface runoff, & dermal contact. Ground water remains contaminated.	Potential risks of people drinking contaminated water or ingesting vegetables having accumulated PCPs.	Requirements for 40CFR Parts 260 through 264 for closure plans applicable to surface capping. DER permit.
2. Solidification Cost Confidence Unit Cost Range* 87.83 to 99.71	Conventional equipment & procedures used for soil excavation & solidification. Cleanup effectiveness must be verified with leach tests.	Solidification of contaminated soils will minimize possible adverse environmental impacts.	Risk exposure of workers during excavation is high. After solidification, risk of exposure to contaminated soils is low. The risks of ground water contamination will be significantly reduced.	Local permits may be required for site activities. State DER permit RCRA permit required for discharging treated water to McGirts Creek. Requirement of of 40CFR Parts 260 through 264, 170 & 124 are applicable for solidification/stabilization.
3. Containment & Encapsulation Cost Confidence Unit Cost Range* 58.35 to 76.73	Conventional equipment and procedures used for soil excavation & containment. Trained personnel needed for liner	This method will minimize possible environmental impacts. Greater environmental risk than Alternatives 1 & 2, due to possible failure of the liner.	Risks associated with process include workers' exposure to contaminated soils & dust particles during excavation. The long-term incremental reduction in risk includes elimination of air, surface & ground water pathways.	Requirements for 40 CFR Parts 260 through 264 RCRA specifications for TSD facilities.
4. Solvent Extraction Cost Confidence Unit Cost Range* 110.00-440.12	Specialized equipment & personnel needed for solvent extraction. Common equipment & procedure used for excavation.	PCP contaminated soils are extracted & potential adverse environmental impact is mitigated.	Same concerns regarding excavation as Alternative 1. Using a non-toxic solvent will achieve an overall risk reduction from PCP contamination.	Same as Alternative 1, plus DOT permits for transportation of of concentrated extracted fluids containing PCPs. EPA manifest documentation required.

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Table 12 (cont.). Summary of Evaluation of Remedial Alternatives.

Alternative	Technical Feasibility	Environmental Impact	Public Health Concerns	Institutional Requirements
5. Incineration Cost Confidence Unit Cost Range* 188.02-206.94	Common equipment & procedures used for soil excavation. Specialized equipment & expert technical personnel required. Incineration has mechanical components subject to breakdown & costly delays.	Short-term potential for releases of toxic emissions & residues into environment. Effective engineering & management of air pollution control & quenching system will mitigate possible environmental risk.	High potential for risk reduction or organic PCP contaminants.	This option may demand air quality permits from DER.
6. Offsite Disposal Cost Confidence Unit Cost Range* 188.16-224.89	Common equipment & procedures used for soil excavation & offsite trucking. Possibility of spill during transportation of soils.	This alternative will have additional (low) environmental risks due to possibility of spills during transportation.	This alternative will have incremental public health risks reduction because PCPs are removed & transported.	State & Federal DOT permits required for transportation of contaminated soils. EPA manifest documentation required.
7. No Action	No additional equipment or facilities required.	High possibility of waste migration via surface runoff & ground water. Possible impact on receiving waters.	Possible risks of ingestion, dermal contact & inhalation of PCPs at levels considered toxic to humans.	None

* Unit costs are expressed in dollars per ton.

Table 13. Cost Estimates of Retained Remedial Technologies

Technologies	Present Worth Construction Cost Dollars	Present Worth O&M Cost, Dollars	Total Present Worth Cost	Ratio (1)
Surface Capping	447,950	334,000	781,950	1
Containment/Encapsulation *	992,000	334,000	1,326,200	1.70
Solidification *	1,496,000	218,000	1,714,900	2.19
Offsite Disposal *				
Pinewood, SC	3,606,000	0	3,606,600	4.61
Emelle, AL	5,088,000	0	5,088,000	6.51
Incineration *	3,703,000	0	3,703,000	4.74
Solvent Extraction	5,767,400	41,700	5,809,100	7.43

(1) = Ratio of technology costs over the cost of the technology with the lowest present worth cost.

* = Costs include ground water recovery and treatment operations.

Alternative 4 - Offsite Disposal. This technology involves excavation of contaminated soils and transport to an offsite RCRA-approved facility for treatment, storage, or disposal. Approved facilities exist in Emelle, Alabama and Pinewood, South Carolina.

Alternative 5 - Onsite Incineration. This option would involve the use of a temporary incineration facility to destroy PCP in contaminated soils excavated from the site. Contaminated soils would pass through a primary chamber to "flash" the PCP from the soils and PCP destruction would occur in a secondary chamber with higher temperatures. The soil residue would be used to backfill excavation trenches after analysis had demonstrated that the PCP had been efficently removed.

Alternative 6 - Solvent Extraction. "Soil Washing" would consist of using some type of solvent such as methanol to remove toxic substances (PCP) from the soil. Treatability studies conducted during the Remedial Investigation demonstrated that this technology is feasible for this site on a bench scale. However, full scale testing will be required.

Alternative 7 - No Action. This option would preclude further EPA involvement with the Coleman Evans site and no further expenditures of Superfund money. Institution of the no action alternative may not immediately impact public health or welfare, but it would allow PCP contaminated site runoff to continue to enter the surface water regime, thus contributing to the deterioration of the environment.

SECTION VI
COMMUNITY RELATIONS ACTIVITIES

Community relations efforts for the Coleman Evans site were initiated in November 1984 when EPA personnel visited the site along with personnel from the REM II community relations contractor, ICF, Inc. Attempts were made to contact area residents; however, neighborhood response ranged from disinterest to strongly negative sentiment. Only two area residents agreed to discuss the site: Mr. H.G. Moore, 10917 General Avenue, and Mrs. Mamie Norman, 10904 General Avenue.

An information repository was established at the Whitehouse Elementary School near the site, and all finalized documents were placed on file to provide local public access.

During the RI/FS process, EPA was never contacted by concerned citizens with regard to the Coleman Evans site; although sporadic press interest was generated.

At the completion of the RI/FS process, EPA published and mailed a fact sheet to interested parties as identified in the March 1985 Community Relations Plan. On August 7, 1986, a public meeting was held to discuss the findings of the RI/FS. Attendance was light and the question and answer session was not extensive. The public meeting served to initiate a 3 week public comment period which closed on August 28, 1986. The only written comment received during this period was a proposal for a remedial action submitted by Coleman Evans contractors. The responsiveness summary was completed on September 16, 1986, and placed into the information repository. A copy of the responsiveness summary is presented in Appendix A.

SECTION VII
CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Environmental Laws which may be applicable or relevant to the remedial activity are:

-- Safe Drinking Water Act (SDWA)
-- Resource Conservation and Recovery Act (RCRA)
-- State of Florida Administrative Code Chapter 17-3.061.3(m)
  - Surface Waters: General Criteria
-- Federal Water Quality Criteria (WQC)
-- Clean Air Act (CAA)

Locally private wells obtain water from the limestone unit of the surficial aquifer system, which is protected by a high integrity confining unit. During the RI field study, numerous private wells were sampled and analyzed. The results indicated that the private wells have not been impacted by the site. Therefore, the residents currently have a safe drinking water supply, as specified under the SDWA.

The no-action alternative would not comply with the Hazardous Waste Regulations identified in Subtitle C of RCRA. However, all other alternatives being considered are in accordance with RCRA Subtitle C. The selected alternative, as outlined in Sectin VIII, includes excavation of contaminated soils. In order to implement soil excavation, the upper portion of the aquifer will require dewatering. Contaminated ground water must be treated until the PCP concentration is less than 1 ug/l in order to comply with the surface water discharge levels set forth in Chapter 17-3 061.3 (m) FAC. This level was established by the State of Florida to protect aquatic species. The Federal Water Quality criteria has not established a standard for PCP to protect aquatic species; however, a human health criteria of 30 ug/l was established to prevent organoleptic effects. A soil cleanup level of 10 mg/kg was based on risks identified in the Public Health Evaluation (FS, Appendix A).

Incineration activites would be conducted in accordance with the applicable permitting standards and operations protocols established in the Clean Air Act. A quality assurance program would be developed under the remedial design phase.

The National Resource Damage Assessment conducted by the Fish & Wildlife Servive concluded that the Coleman Evans Site has not impacted any federal trustee resources (Appendix B). There are currently no threatened wetlands and the site is above the 500-year flood plain (Figure 12).

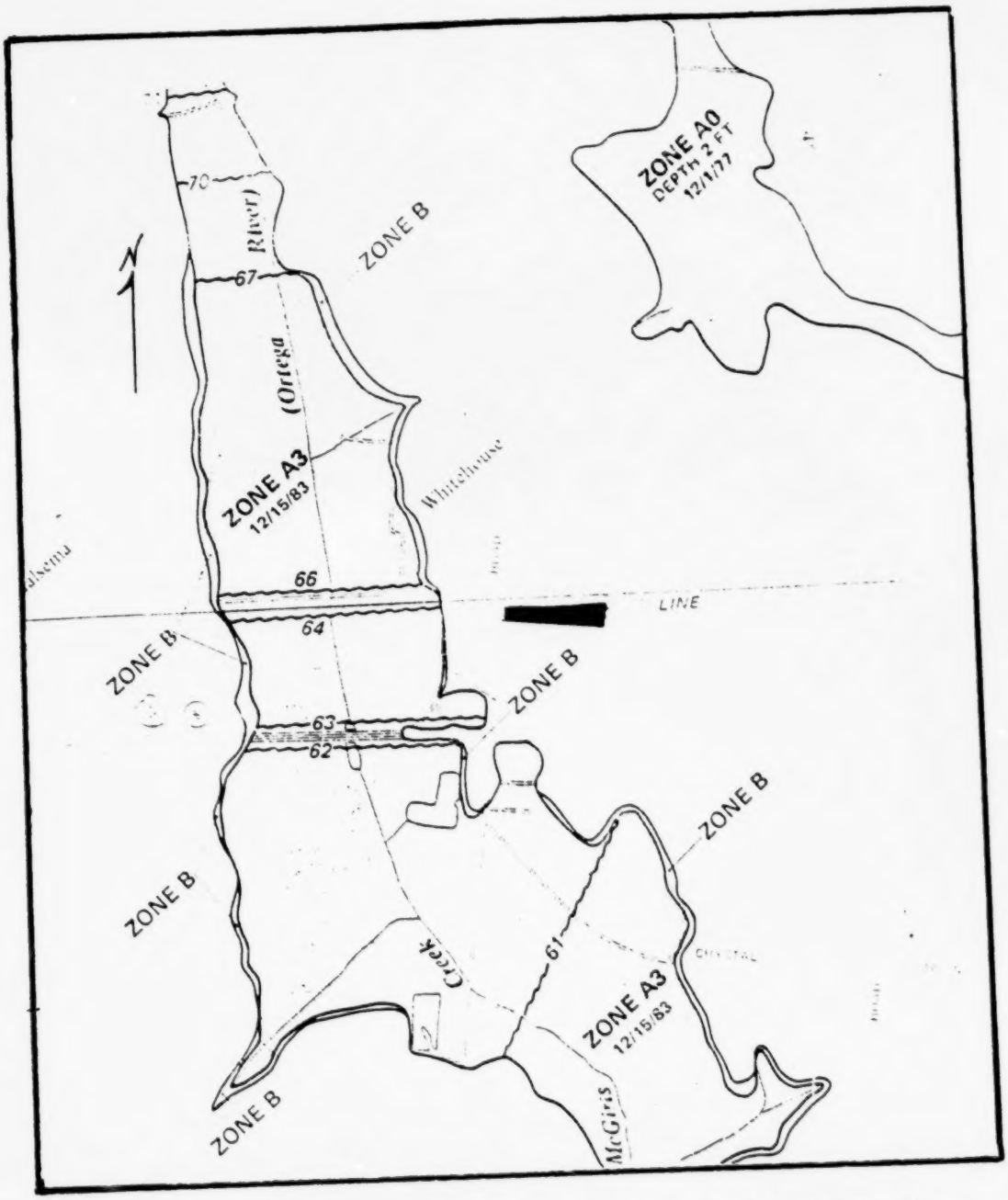

Figure 12. 500-Year Flood Potential Map for the Area Surrounding the Coleman Evans Wood Preserving Company. Zones Designated with the Prefix "A" Indicate Areas of 100-Year Flood levels (Dark Areas) and 500-Year Flood Zones are Designated with the Prefix "**B**". National Flood Insurance Program Insurance Rate Map #12007-0500-D.

SECTION VIII
RECOMMENDED ALTERNATIVE

SELECTED REMEDY

The recommended alternative for the Coleman Evans site consists of excavating all soils which have PCP contamination in excess of 10 mg/kg, and destruction of the contaminants through onsite incineration. In order to excavate the contaminated soils, dewatering will be necessary.

A mobile incinerator will be used onsite to destroy the PCP found in soils. The process will involve use of primary and secondary incineration chambers. PCP and diesel fuel will be converted to gaseous phases in the primary chamber and thermal destruction will occur in the secondary chamber. Decontaminated soils will retain virtually their initial volume and can be used to backfill excavation areas. The total volume of soils to be treated is estimated to be 9,000 cubic yards.

Ground water recovery will involve localized use of well points, which are sufficient for the shallow excavation depths (less than 20 feet) necessary at this site. Areas in which ground water contamination was identified coincide with areas of soil contamination, thus there is little risk of allowing contaminated ground water to escape; however, all ground water with PCP concentrations greater than 1 mg/l will be recovered. The recovered ground water will be analyzed and treated by activated carbon adsorption if PCP concentrations exceed 1 ug/l. Treated effluent will be discharged to an on site drainage ditch. The spent carbon will be thermally regenerated, which will destroy the remaining PCP contamination. The volume of ground water containing PCP in excess of existing standards is conservatively estimated to be 900,000 gallons.

Other incidental Hazardous Substance List compounds identified in the ground water during implementation of this remedy will be cleaned up to levels which comply with Drinking Water Standards. If the Drinking Water Standards do not address these compounds, cleanup levels will be consistant with the human health criteria identified in the 1980 Water Quality Criteria. Clean up of compounds for which no standards exist will be to non-detection levels. In cases where standards promulgated by the State of Florida are more stringent, the state standards will have precedence. Also, should EPA promulgate standards which are more stringent than existing standards or criteria, the newer standard will be implemented.

Since this alternative provides total destruction of the wastes, long term monitoring is not required, nor will there be any operation and maintenance costs associated with this remedy. Nor will land use restrictions be imposed.

COST-EFFECTIVENESS

This remedy selected for the Coleman Evans site is the most effective alternative, and is considered to be the most permanent remedy of choice which resolves the threats posed by the site. The environmental benefits

gained outweigh the financial advantages gained by selecting a more cost-effective solution. A summary of feasible alternatives and rejection criteria are presented in Table 14.

The selected remedy is estimated to cost between $3.0 and $3.8 million dollars. The State of Florida has instituted a program for addressing the problems posed by uncontrolled hazardous waste sites. This program is designed on the CERCLA model and is operated similarly to Superfund through the Florida Department of Environmental Regulation. The State of Florida has agreed to fund 10% of the cost for implementing the selected remedial action (Appendix C). The City of Jacksonville Bio-Environmental Services Division has also concurred with the selected remedy (Appendix D).

Table 14. Summary Table of Feasible Alternatives and Cost-Effectiveness Comparison. Costs Presented in Millions of Dollars.

Remedial Alternative	Reason for Non-Selection	Estimated Cost Range
1. Surface Capping	Implementation would not deal permanently with the site contamination although it provides a high degree of protection to surface water and air. Groundwater contamination would remain. Restricts site use.	0.5 to 0.9
2. Solidification and Stabilization	This is a viable alternative, but contaminants would remain on-site and long-term monitoring would be required. Land use limitations	1.4 to 1.9
3. Containment and Encapsulation	This is a cost-effective option, but contaminants would remain untreated. Greater environmental risk arises from the potential for liner failure. Long term monitoring and O&M will be required.	0.7 to 1.5
4. Solvent Extraction	This option is fully effective for migration of all threats, but incineration is equally effective with a lower cots.	4.5 to 9.6
5. On-Site Incineration		3.0 to 3.8
6. Off-Site Disposal	Does not remediate wastes, only involves transport to a RCRA-approved facility.	2.9 to 4.2
7. No Action Alternative	No remediation of site specific conditions potential health and environmental risks.	0.0

SECTION IX
OPERATION AND MAINTENANCE

No operation and maintenance will be required for the selected remedy since all existing contamination will be thermally destroyed.

SECTION X
FUTURE ACTIONS

Successful implementation of the selected remedy will ultimately remove the Coleman Evans Wood Preserving Company site from under the jurisdiction of the Comprehensive Environmental Response, Compensation and Liability Act once it has been deleted from the NPL. Future site actions will be limited to applicable aspects of the Resource Conservation Recovery Act (RCRA), for the duration of the facility's existance.

SECTION XI
PROJECT SCHEDULE

The schedule for the RD/RI phases of the Coleman Evans Wood Preserving Company remediation are dependent on the success of enforcement negotiations. If the PRPs agree to undertake RD/RA, the schedule will be negotiated to accommodate EPA, FDER, and the PRPs.

If, however, negotiations with the PRP are unsuccessful, EPA will follow the schedule outlined below:

Schedule Landmark	Date for Implementaion
1. Finalization of the ROD	9/30/86
2. Complete Enforcement Negotiations	12/31/86
3. Award Superfund State Contract (and IAG) for Design	2/31/87
4. Initiate Design	4/1/87
5. Complete Design	10/1/87
6. Award/Amend Superfund State Contract (and IAG) for Construction	10/30/87
7. Initiate Construction	12/1/87
8. Complete Construction	12/1/89

APPENDIX A

RESPONSIVENESS SUMMARY

Coleman Evans
Wood Preserving Company

REGION IV

COLEMAN EVANS WOOD PRESERVING CO.
RESPONSIVENESS SUMMARY

September 16, 1986

RESPONSIVENESS SUMMARY
COLEMAN EVANS WOOD PRESERVING COMPANY SITE

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV

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Following the Work Plan phase of the study from September 1984 to April 1985, the Remedial Investigation/Feasibility Study (RI/FS) for the site was conducted from June 1985 to June 1986. EPA received no telephone calls or letters from the public concerning the site during that time. A community relations plan describing community concerns and recommending community relations activities was prepared in March 1985. In accordance with the EPA National Contingency Plan and suggestions made in the Community Relations Plan, EPA established an information repository at the Whitehouse Elementary School. The repository contained public documents on the site, including the RI/FS work plan and the RI/FS report.

Once the draft FS was completed, a fact sheet (Attachment A) was prepared to describe the remedial technologies that EPA was considering for the site, the proposed clean-up goals, and the details of the public meeting and the public comment period. The fact sheet was mailed to individuals on the Coleman Evans site mailing list and placed in the information repository. Announcements for the public meeting and the public comment period were placed in local papers. EPA held the public meeting on August 7, 1986 and the public comment period covered the period from August 7 to August 28, 1986. Approximately 10 to 15 concerned citizens attended the public meeting. The transcripts of the public meeting are presented in Attachment B.

The only written response received was from Ground Water Technology, Inc. (GTI), a consultant for the Coleman Evans Wood Preserving Company. The GTI proposal is summarized below, and the full document is presented in Attachment C.

Comment Summary

GTI submitted a response to the Feasibility Study. The document which was submitted was a "Response to Feasibility Study" in which GTI outlined a proposal to undertake photo/biodegradation of the contaminated waters and soils at the site and to recovery and recycle the free-floating pentachlorophenol/diesel fuel mixture from the surficial aquifer. The proposal included site history, a work plan, a monitoring program, a cost evaluation, and a photo/biodegradation process summary.

Response

EPA reviewed the potential application of biodegradation for the Coleman Evans site during the Feasibility Study and has reviewed the proposal submitted by GTI. This technology was eliminated during the early phases of the Feasiblity Study because of technical problems associated with biodegradation. First, the feasibility of this process would have to be determined during a long term pilot testing program, especially since there have been limited previous studies which evaluate biodegradation of pentachlorophenol. Second, the volume of contaminated soils (estimated to be 9,000 cubic yards) would require a long period of time for complete digestion of the contaminants, especially at the greater depths of contamination identified during the Remedial Investigation. Third, the contaminants which are at depth may exist under anaerobic conditions. In order to evaluate biodegradation as a feasible option, a very wide range of conditions would have to be implemented during the testing process. Finally, there is a potential for the creation of unacceptable by-products during the biodegradation process; specifically dioxins. Generation of dioxins would further increase the risk to the public health and welfare, and to the environment than is currently posed by pentachlorophenol, the main contaminant of concern.

Although the financial aspects of biodegradation are attractive, the potential for greater health and environmental risk and the long periods of time required for testing and implementation are unacceptable to EPA. For these reasons. EPA eliminated biodegradation technologies during the Coleman Evans Feasibility Study process. EPA has determined that biodegradation is not sufficiently proven to be an acceptable option for remediation of the conditions at the Coleman Evans Wood Preserving Company site.

APPENDIX B

Natural Resource Damage Assessment

Coleman Evans
Wood Preserving Company

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 2 5 1985

ER84/1518

Mr. Gene Lucero, Director
Office of Waste Programs Enforcement
Environmental Protection Agency
401 M Street, SW (Room S362N) WH 527
Washington, D.C. 20460

Dear Mr. Lucero:

The Department of the Interior has conducted a preliminary natural resources survey of the Coleman/Evans Wood Preserving Company at Whitehouse, Duval County, Florida, to determine whether the Secretary of the Interior's trust responsibilities for natural resources have been affected.

Our survey indicates that there are no lands under the trusteeship of the DOI near the Coleman/Evans site. However, the Ortega River system nearby can be inhabited by various trust resources, including anadromous fish, migratory birds, and endangered and threatened species of wildlife. The manatee, an endangered marine mammal, can be found in the Ortega River system.

Site visits and review of various reports and studies show that soils and surface waters have not been seriously contaminated very far off site. There is no documentable evidence that our trust resources have been affected by materials from this site. However, we believe the site should be cleaned up quickly so that contaminants do not move off site.

Accordingly, we would grant a release from claims for damages to natural resources under our trusteeship from the Coleman/Evans site, provided that timely remedial action consistent with the NCP is taken to clean up the site.

Sincerely,

Bruce Blanchard, Director
Office of Environmental Project Review

cc:
Steve Klein/EPA

APPENDIX C

State of Florida
Letter of Concurrance
for the
Selected Remedy

Coleman Evans
Wood Preserving Company

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

September 24, 1986

Mr. Jack Ravan
Regional Administrator
United States Environmental
Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

RECEIVED
SEP 25 1986
EPA - REGION IV
ATLANTA, GA.

Dear Jack:

The Florida Department of Environmental Regulation agrees with the selection of Alternative #5 as described in the final feasibility study for the Coleman Evans Wood Preserving Superfund Site in Whitehouse, Duval County, Florida.

This alternative includes the excavation and on-site incineration of soils and sediments, and the on-site treatment of contaminated ground water. This alternative will effectively destroy contaminated soils and sediments and treat ground water.

The cost estimate for Alternative #5 ranges from $3.0 - $3.8 million for the use of a temporary on-site incineration facility, and groundwater treatment unit. Due to the complete destruction of site specific contaminants by incineration, no post-remedial monitoring or operation and maintenance activity is required. The state will provide ten percent of the total cost, or about $300,000 - $380,000 from the State Water Quality Assurance Trust Fund.

We look forward to participating with the U. S. Environmental Protection Agency during implementation of remedial activities at the Coleman Evans Wood Preserving site.

Sincerely,

Vicki

Victoria J. Tschinkel
Secretary

62

VJT/ps

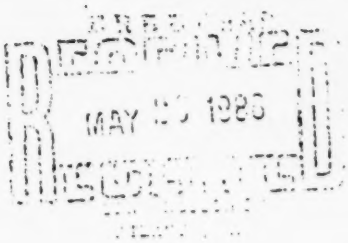
APPENDIX D

City of Jacksonville
Letter of Concurrance
for the
Selected Remedy

Coleman Evans
Wood Preserving Company

DEPARTMENT OF HEALTH, WELFARE
& BIO-ENVIRONMENTAL SERVICES
Bio-Environmental Services Division

May 21, 1986



Ms. Kristina Teepen
Remedial Project Manager
U. S. Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, GA 30365

RE: Coleman Evans Wood Preserving Company
Draft Feasibility Study

Dear Ms. Teepen:

The Bio-Environmental Services Division (BESD) has briefly reviewed EPA's Draft Feasibility Study of Coleman Evans Wood Preserving Company, dated May 2, 1986.

The BESD would support the option of incineration, over the other options for remedial actions, as presented. Incineration provides the following benefits which BESD feels are noteworthy.

I. Destruction of the organics

II. Usability of the site after contamination disposal

III. No requirement for continual monitoring

Incineration, of course, as an option needs to be better defined prior to implementation. Specifically such items as retention times, in situ monitoring, etc. must be detailed. Further, in order for incineration to be viable, just from a permitting standpoint, a great deal of public awareness and education on the benefits of the program shall be necessary. Otherwise a permit may be delayed as a result of public concerns requesting Administrative Hearings.

If BESD can be of further assistance, please advise.

Very truly yours,

Robert Steven Pace

Robert Steven Pace, P.E.,
Bio-Environmental Engineer

cc: Mr. Ernest E. Frey, P.E. DER
John K. Flowe, P.E.
Khurshid K. Mehta, P.E.

RSP/ns

AREA CODE / 904 / 633-3318 / 515 WEST 6TH STREET / JACKSONVILLE, FLORIDA 32206-4397

APPENDIX E

PUBLIC HEALTH EVALUATION

Submitted
by
CDC/ATSDR

Coleman Evans
Wood Preserving Company

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

Memorandum

Date June 26, 1986

ERRD/RAS
RECEIVED
JUN 26 1986
RECORDS
EPA - REGION IV
ATLANTA, GA.

From Public Health Advisor
ATSDR-EPA Liaison

Subject Coleman-Evans NPL Site;
Duval County, Florida

To Kris Teepen, RPM
EPA ERRB RAS

As requested, I have reviewed the Draft Feasibility Study, dated May 2, 1986, for the referenced site. Given my long term involvement with this site, and in the interest of time for your program management purposes, I have elected not to refer this document to the ATSDR for a more indepth review and comment. I trust you will find the following useful.

Historical EPA and ATSDR review and other site documents on file have sufficiently identified the actual and potential public health issues of concern for this site, especially the factors that must be present in order for a public health threat to exist. The 1984 EPA emergency response action (excavation of lagoon sludges) appears to have helped reduce the predominant public health threat posed by the site (i.e. potential for percolation and migration of contaminants to adjacent private wells).

The qualitative risk assessment that is described in the FS assesses on both technically and epidemiologically sound bases, the potential health concerns existing at the site with current (p. 1-1) and future use (p. A-32) exposure scenarios. As such, any, or a combination of the three preferred remedial alternatives (surface capping w/closure; solidification; incineration) appear adequate to protect public health and to reduce the potential for future exposures to occur that may increase the threat of exposure to site contaminants at levels that would be of health concern.

However, if a "No Action" alternative is selected, it appears prudent that a monitoring program of private wells at the residences adjacent to the site be considered. Contingency plans should also be developed if such monitoring identifies that site contaminants at levels exceeding primary drinking water standards are found at those wells in use for potable purposes.

If I can assist further with the remaining remedial phases of this site, please let me know.

Chuck Pietrosewicz

cc: file
ATSDR/Buynoski

REGION IV

COLEMAN EVANS WOOD PRESERVING CO.
RESPONSIVENESS SUMMARY

September 16, 1986

RESPONSIVENESS SUMMARY
COLEMAN EVANS WOOD PRESERVING COMPANY SITE

U. S. ENVIRONMENTAL PROTECTION AGENCY
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APPENDIX B

Natural Resource Damage Assessment

Coleman Evans
Wood Preserving Company

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUN 2 5 1985

ER84/1518

Mr. Gene Lucero, Director
Office of Waste Programs Enforcement
Environmental Protection Agency
401 M Street, SW (Room S362N) WH 527
Washington, D.C. 20460

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Sincerely,

Bruce Blanchard, Director
Office of Environmental Project Review

cc:
Steve Klein/EPA

APPENDIX C

State of Florida
Letter of Concurrance
for the
Selected Remedy

Coleman Evans
Wood Preserving Company

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

September 24, 1986

RECEIVED
SEP 25 1986
EPA - REGION IV
ATLANTA, GA

Mr. Jack Ravan
Regional Administrator
United States Environmental
Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

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Sincerely,

Victoria J. Tschinkel
Secretary

73

VJT/ps

APPENDIX D

City of Jacksonville
Letter of Concurrance
for the
Selected Remedy

Coleman Evans
Wood Preserving Company

DEPARTMENT OF HEALTH, WELFARE
& BIO-ENVIRONMENTAL SERVICES
Bio-Environmental Services Division

May 21, 1986

RECEIVED
MAY 23 1986
BESD

Ms. Kristina Teepen
Remedial Project Manager
U. S. Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, GA 30365

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Bio-Environmental Engineer

cc: Mr. Ernest E. Frey, P.E. DER
John K. Flowe, P.E.
Khurshid K. Mehta, P.E.

RSP/ns

AREA CODE / 904 / 633-3318 / 515 WEST 6TH STREET / JACKSONVILLE, FLORIDA 32206-4397

APPENDIX E

PUBLIC HEALTH EVALUATION

Submitted
by
CDC/ATSDR

Coleman Evans
Wood Preserving Company

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

Memorandum

Date June 26, 1986

ERRD/RAS
RECEIVED
JUN 26 1986
RESOLVED
EPA - REGION IV
ATLANTA, GA.

From Public Health Advisor
ATSDR-EPA Liaison

Subject Coleman-Evans NPL Site;
Duval County, Florida

To Kris Teepen, RPM
EPA ERRB RAS

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ATSDR/Buynoski